

American Aviation

The Independent Voice of American Aeronautics

MARCH 15, 1945

Expansion in Alaska

RUDYARD KIPLING'S comment on aircraft never can be quoted too often in these days of planning for the future. "We are at the opening verse of the opening page of the chapter of endless possibilities." Some might

say that as a result of the war we have finished with the opening verse and perhaps even the opening page. But the chapter of endless possibilities still is ahead.

In all of the day-to-day concern with current problems of design, operation, maintenance, hearings, regulations, financing, traffic estimates, airports and the thousand-and-one other things which affect the entire business of aviation, the greatest single danger to the future of aviation is a stalemate in thinking.

The plane is still young. The real development, the real expansion, and the real usefulness of the plane as a vehicle of transportation and as an instrumentality for peace, still is ahead.

Out of this war will come several million men whose interest in the plane was academic until they donned the uniform of the air service. They expect great things from the plane. They won't understand a restrictive attitude toward its use in world society.

This means that our thinking and planning in terms of the future must be broad, flexible and filled with opportunities.

Just recently a hearing on applications for new routes to Alaska was completed before an examiner of the Civil Aeronautics Board. The CAB's decision will be an important one, for Alaska is one of America's frontiers susceptible of great expansion.

(Turn to page 6)



O'Reilly Joins Arinc

Gordon A. O'Reilly, who has been superintendent of communications for Transcontinental & Western Air, has joined Aeronautical Radio, Inc., as full-time vice president and general manager.

Late Bulletins

2 Interchanges Asked

Colonial and Delta have proposed that interchange agreements could accomplish the purposes of a direct Detroit-Miami route if such a route is not granted to one company. Colonial proposes to connect with Delta at Columbia, S. C., if Delta is certificated to Florida. Delta further proposes a Florida interchange with TWA at Cincinnati.

Ansett Defeated

In an election vital to the futures of Guinea Airways, Australian National Airways, and Ansett Airways, Reginald M. Ansett, president of Ansett, has been defeated for a place on the Guinea board. Ansett plans a court fight contesting the election.

New Interline Ticket: At last the airlines think they have developed a new interline ticket that will answer all the problems of filling out long strips of paper. In about six months a radically new "book ticket" will appear which takes only a minute or less to put through a new automatic machine. Experiments with a machine developed by the National Cash Register Co. didn't work out; the machines were only good for 80 or less on-line stops, and wouldn't work for interline tickets. The new system probably will bring the machine age into passenger ticketing in a big way.

Ryan's New Plane: The Navy has not yet released the details of its highly secret new fighter which is now being turned out in quantity by the Ryan Aeronautical Co., but the known facts add up to one of the biggest individual programs in the industry.

Ryan's annual report discloses that at the end of the fiscal year, Oct. 31, the company had orders for approximately \$58,000,000 worth of these aircraft. Ryan has shelved the production of wings and major plane assemblies for other manufacturers to devote the major part of its facilities to this secret plane—which will add a substantial piece of news to the public concept of aeronautical progress when released.

Drastic Resolution: A resolution placed before the Foreign Relations Committee during the fortnight would virtually wreck the accomplishments of the Chicago International Civil Aviation Conference, observers point out. The resolution, if adopted, would seek to have the Convention Treaty (Title 11), the interim agreements, and all of the various other documents submitted to the Senate Foreign Relations Committee for study. The state department would be instructed to notify foreign governments that a treaty is under consideration and pending, and that all acceptances should be withdrawn and no further commitments made until the Senate Foreign Relations Committee, and possibly the entire Senate, had reached a decision. Back of the move is Sen. Ralph O. Brewster (R., Me.) advocate of the chosen instrument theory. Observers believe action on the resolution will be blocked or stalled off.

(Turn to page 4)



Worth its weight in **Black Gold**

When drilling for oil . . . America's *black gold* . . . occasional breakdowns are almost inevitable—even with the finest of equipment operated by experienced men. And such breakdowns are costly—in time and money.

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(Continued from page 1)

'Air Traffic Cops': The United States Army Ground Forces are watching tests of a new small plane on the West Coast with the idea of possibly using it as a military police craft. It would be a "traffic cop of the air," employed to direct traffic along military supply lines leading up to the battlefronts. The plane is a one-place 40 hp. craft. It is smaller than those used as "grasshoppers" for reconnaissance and directing artillery fire.

Double Blow: Attempts of steamship companies to enter the aviation field were given two setbacks within two days. First, the report of Attorney General Francis Biddle prepared by the Department of Justice on international air transport policy strongly recommended against surface carriers controlling international airline services. The following day the Department of Justice recommended that the applications of the five steamship companies in the Civil Aeronautics Board's Latin American case should be dismissed.

Quit Rate Better: West Coast aircraft manufacturers, totaling their absenteeism and quit rate figures for January, found the situation improved. The separation rate went down from 5.5 percent in December to 5.1 percent in January—the lowest for any month since war expansion started, the Aircraft War Production Council reported. Two-thirds of all workers quitting had been employed for less than a year.

Absenteeism decreased from 6.89 percent in December to 6.14 percent in January—the rate for men being 4.66 percent and for women 8.43 percent. The overall average for the West Coast plants is 42 percent women employees—although one plant hired as high as 69 percent women during January.

Comparable figures are not available for other areas, but manufacturers feel that the time will soon come when many workers will want to hang on to their aircraft jobs as long as possible. The longer general conversion to civilian production is deferred, the longer many workers will need jobs.

New Aviation Study: The United States Chamber of Commerce is polling its membership for a cross-section of opinion on some of the major problems which will arise with the increased development of civil aviation expected after the war. Information gained through its questionnaires will be reviewed when the Chamber's Transportation Committee meets in Washington March 21 and 22. Subsequently the Committee's recommendations will be submitted to member Chambers throughout the country for approval.

Among the subjects covered are: state regulation, contract air carrier regulations, venture capital to develop feeder lines, simplification of regulations, future training programs, aeronautical research, and supervision of airport construction. Representing the viewpoints of a wide cross-section of business throughout the country, results of the questionnaires will give a good picture of national thinking on important aviation questions.

Scrapping Planes: Suggestions made by some industry leaders that it will be necessary to scrap many obsolete military planes after the war found strong support in the annual report issued last fortnight by Gen. H. H. Arnold, commander of the AAF.

Devoting much space in his report to the importance of a progressive aviation industry, Gen. Arnold said: "One way to keep it progressive after final victory is promptly to sell, or scrap excess or obsolete planes so that they will not hang over the Air Force and the aviation industry, retarding development. This happened after the last war, but must not happen again."

Gen. Arnold also strongly recommended that the Government keep as stand-bys some of its aircraft plants and production equipment not subject to rapid obsolescence.

"Preeminence in the air implies maximum ability to maintain and expand existing establishments," he said. "There must be a strong and healthy aviation industry, building thoroughly modern aircraft and equipment, and developing, testing, and experimenting with advanced designs for tomorrow."

Renegotiation: Manufacturers may count on continuing to operate under the Renegotiation Act, or one very similar to it. Chairman Carl Vinson (D., Ga.) of the House Naval Affairs Committee has introduced a bill (H.R. 2409) calling for extension of the Act until Dec. 31, 1945. Washington observers expect to see Congress vote the extension with little argument.

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THE GUN'S IN A JAM— BUT THE PILOT'S NOT!

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Here is a territory one-fifth the size of the United States. It is rich in minerals. It still is in the stage of early development. It is the gateway to the Orient. It can provide many of the jobs and opportunities our returning veterans want to find.

A number of carriers want to fly there. Each of them knows that a route will be successful only by initiative and development. Each is staking its claim on the future prospects of our northern territory, not in the limited traffic that existed before the war.

Why not permit a number of carriers to try their hands at developing air service to Alaska, just as the railroads extended their lines into the western part of the country in the expectation that the availability of service would develop traffic and commerce? If Northwest Airlines thinks it can do a job from Minneapolis to Alaska, why not? If Western Air Lines wants to operate from Great Falls to Alaska, why not give it a try? If United Air Lines wants to join Pan American in providing a service from Seattle, why not?

Alaska is not an existing trade pattern. It does not have surface transportation to the United States except by steamship. It is a frontier where the pioneering spirit counts hugely in its development. There is nothing much to "divide up" because Alaska's assets are in the future. Transportation will play a very large role in bringing trade and commerce to this area. The plane needs no costly roadbeds, no expensive maintenance, no heavy ground investments.

Here is one typical example of opportunity which must not be overlooked. If an airline fails to develop traffic, let it withdraw. But in this pioneering stage, take the reins off and let those who think they can do a job move ahead and try it. Alaska is only now in the opening verse of the first page. The chapter of endless possibilities cannot be unfolded by holding back the very type of transportation that provides a key to business and travel expansion.

The British Advertise

WHILE the Aeronautical Chamber of Commerce is endeavoring to get organized after several false starts, it might well ponder the advertising program of The Society of British Aircraft Constructors. A recent advertisement in a Mexico City newspaper, signed by the British aviation industry and financed through the SBAC, featured British four-engined bombers and pointed out that Britain's bombing of Europe in the war has been a transportation problem and that the experience gained will make for better transport planes when peace comes.

"Today, the four-motored British bombers carry a destructive load which is very much more powerful than that of any other plane in service the world around, with a relatively small crew," the advertisement said. "When the time comes, the British aviation industry will give their great experience acquired in the drafting, construction and functioning of large aircraft, to solve the problems brought about by worldwide transportation during peace."

If nothing else, the advertisement proves that bragging is not the sole prerogative of American manufacturers who have not been shy or modest when it comes to claims. But in serious vein, it should give United States manufacturers, jointly, something to think about in a unified industry approach to the world market. At a time when the United Kingdom

They shall not die!



They will live... to be the citizens, husbands and fathers of the future. Hundreds of thousands of American boys, wounded on far-off battle fronts, are being restored to health and life because medical care, through the swift sure mercy of air transpor-

tation, is only a few hours away. Douglas workers, builders of planes for the airlines yesterday and tomorrow, are glad that today their skill can thus bring prolonged life to the country's heroes. This is our first obligation until the war is over.

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places great restrictions on the expenditure of Pounds Sterling outside the United Kingdom, the appearance of paid advertising in Latin America means that Britain places considerable importance on retaining its prestige in that area. In any event the advertising is evidence of initiative and an appreciation of the world aviation market.

In addition to its very excellent personal plane program, the Aeronautical Chamber of Commerce might well devote some fresh attention to the foreign market on behalf of the entire industry, and endeavor, in some way, to recapture some of the prestige lost at the unfortunate Chicago banquet last November.

Local Air Services

FEW COMPONENTS of the general field of air transportation involve so many intangibles and so many imponderables as do non-scheduled commercial services. With the opening of the Civil Aeronautics Board's broad investigation of non-scheduled services March 27, many of these imponderables will have to be resolved into some sort of pattern.

Are charter operators to be regulated, and if so, to what extent? What of the contract carrier with his flexible air-trucking possibilities? Is regulation necessary, and if so, how can regulation be kept to a minimum to permit sound expansion of all non-scheduled services? These and many other problems need answers, and the CAB investigation undoubtedly will provide ample arguments on all sides.

We have felt for some time that the vast majority of applicants for scheduled feeder airline services are bound to be disappointed, first because the CAB obviously does not intend to grant more than a relatively few experimental certificates, and secondly, because the feeder outlook for most of the country is not very bright.

In an address before the Society of Automotive Engineers in Detroit last January, Hal E. Nourse, director of marketing and economic research for United Air Lines, revealed that his company's studies indicated that air travel does not offer great advantage as a time saver on non-stop distances up to 75 miles. The study also revealed that people in communities of 10,000 and under travel frequently, but that much of this travel is within a 50-mile distance. While existing travel patterns should be used most cautiously, the fact remains that better highways, and improved bus and railroad service after the war, will provide stiff competition with the airplane on short-haul travel. And on a cost basis, the plane is at a distinct disadvantage in most instances.

Won't the big expansion in local services come, therefore, from the non-scheduled charter operators whose flexibility of equipment and operations can provide an aerial taxi service to meet almost all local requirements? We were pleased to note the stress given to this subject by L. Welch Pogue, CAB Chairman, in the speech delivered for him at the National Aviation Trades Association convention in St. Louis last December.

"For some years, at least, I simply do not believe that a scheduled air route stopping at small cities every few miles is going to offer very effective competition to the short-haul advantages of railroads, buses and private automobiles," he said, "I do have the conviction, however, that there will be frequent but irregular demands for air service to and from small cities which in any particular region and in the aggregate will be sizeable . . . If the traffic between particular points becomes sizeable and regular, an application can always be filed with the Board seeking authority to conduct a regularly scheduled service."

Charter operations will be one of the most profitable activities of aircraft service operators after the war and they should be encouraged by the Government with the minimum regulation necessary for the safety of the traveling public, and by the scheduled airlines which can thereby aid their through passengers in reaching local destinations not served by them. Flexible charter operations, not costly feeder scheduled operations, would appear to offer the greatest opportunities for local services except in a few areas where a community of interest exists throughout a region of small communities.

The Man Talks Sense

IT ISN'T TOO OFTEN that we fall in line with Civil Aeronautics Board Member Josh Lee, but we certainly can agree most wholeheartedly with a paragraph in his Feb. 19 address in a Town Hall program in New York.

"I cannot agree with those who continue to insist that there will be no phenomenal increase in aviation after the war," he said. "They take a certain per cent of the passengers who before the war crossed the Atlantic by steamer, first class, and a smaller per cent of those who traveled steerage—add them together, project them and say, 'This is the maximum number of passengers who can be expected to cross the Atlantic by air after the war.' It would have been just as logical to have determined how many people crossed the American desert by stage coach, projected that figure, and then announced, 'This is the maximum number of passengers who may be expected to cross the United States by rail.'"

To which we say Amen.

Hallelujah From London

AT THE INTERNATIONAL aviation conference in Chicago the British proposed an elaborate system of control and regulation for international air commerce which would have stymied effectively almost all air carriers in the world, especially United States carriers.

In the *Shipping World* for Jan. 10, appears a letter contributed to the Shipowners Forum by a J. E. Emlyn-Jones, which heartens us no end.

"There will then be (when the war is over) only two big maritime countries in the world—Great Britain and the United States, the latter in volume of tonnage preponderating," he writes. ". . . Reasonable freight charges will be a *sine qua non* of the world's economic



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restoration. The problem, therefore, as I see it, is to convince America that in shipping, as in every other industry, each country should make the contribution of which she is most capable without such adventitious and disastrous devices as subsidies, tariffs, quotas, embargoes etc. Common sense in these essential requirements will be more important than any consideration of maritime supremacy. The crucial test should be as to whether British or American ships can best do the job."

Substitute the aviation industry for the maritime industry in the above, and it provides an interesting commentary on the British position at the Chicago conference. Thank goodness all the English don't think in terms of restrictive controls.

Good Airport Material

ONE RECENT development which augers well for the future of personal flying is the number and quality of booklets and brochures published for communities on the local airport problem. Aviation has gone through several uneconomic and costly booms in the past, when private flying failed to develop to its promised levels, but never before has there been such practical thought placed upon the community airport problem as is now being done.

Noteworthy in the number of booklets issued lately are those from the aviation division of Esso Aviation Products, and the aviation department of Shell Oil Company. The Michigan Board of Aeronautics, the Aeronautical Chamber of Commerce and a number of manufacturers of personal planes, likewise have contributed excellent booklets.

Most praiseworthy single common denominator in all of these booklets is the economic approach. How to make a local field pay is the biggest single problem facing the average community today. Another striking feature is the imagination and genius that has gone into making the projected fields both attractive and utilitarian. The emphasis is on the small fields for the personal plane owner and the itinerant. At last, aviation has reached the stage at which the airport problem can be clearly divided into airline terminals and airfields for the smaller planes. It's a great step forward and the various companies and organizations which are doing this excellent public relations job are to be most highly commended.

How To Aid Postwar Flying

A CROSS the border to the north of us, there seems to be no more unanimity about what is most needed to foster postwar development of public flying than there is in the U. S. *The Financial Post* recently asked 16 aviation and business leaders what specific measures they would suggest. The closest common ground was airports but even on this item only seven listed airfields as the most important measure. Government subsidization of flying clubs, north-south airways, better safety regulations and small safe aircraft were other top measures. But airfields were mentioned by the majority. It is probably a safe bet that a multitude of good airfields will do more to stimulate postwar flying than any other single factor and our CAA is on the right track in featuring this development in future plans.

WAYNE W. PARRISH.

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And often that "something" is a Delta Air Lines plane, with smiling stewardess at the door, waiting to shorten those last lingering miles which separate him from home. ▲ It seems fitting that a Delta plane should greet this returning boy. For it bespeaks the power and speed with which the South went to war to support its fighting sons. Its streamlined strength symbolizes the vigor of the new Southland—and the rich opportunities it offers to its young men. ▲ The sincere friendliness and courteous service, which will fill every fleeting minute of this boy's flight with Delta, are typical of the traditional hospitality of the great Southland. For Delta has brought to the skyways the true spirit of the warm-hearted South while at the same time contributing importantly to the South's irresistible industrial progress.

DELTA *Air Lines*

THE AIRLINE OF THE SOUTH . . . GENERAL OFFICES: MUNICIPAL AIRPORT, ATLANTA, GA.

Letters

We'll Let Him Refuel

Santiago, Chile
Feb. 15, 1945.

To the Editor:

I am sorry to have to invite your attention to an error on page 54 of your issue of Jan. 1. The article is concerning a flight in one day from the south to the north of Chile.

The article is correct in every respect except that the headline says it was a non-stop flight. Our gasoline capacity didn't permit that. We made stops in Los Angeles and in Santiago, refueling both places.

I hope you won't think I am a quibbler, but my friends here are kidding me about how long an AT-7 (Beechcraft Advanced Trainer) can stay in the air—and besides, I am sure that you want to be correctly informed in a case of this nature.

PAUL HANLEY

Going to Get Steel Umbrella

Norwood, Ohio
Feb. 19, 1945.

To the Editor:

I picked up *American Aviation* magazine (Feb. 15th issue) the other day and in looking through it I came across the column, Letters to the Editor, headed "Views with Horror."

Now I know very little about aviation, only what I have read in aviation magazines that

happen to come across my desk but I agree with the gentleman who wrote the letter because of the fact that I and a couple of other million people live down here where these slap happy private pilots are going to fly over us and I shudder to think what will happen to us landlubbers if the restrictions are not tightened.

The only thing I can think of right now is that I am going to have a steel umbrella made to carry at all times so that when these private pilots start dropping out of the sky it won't be on top of me.

JANE DOWNEY.

Boom! Boom!

Cincinnati,
Feb. 23, 1945.

To the Editor:

Boom! Boom! Boom!

Not once, but three times do you refer to twin boom planes in your "Trend of the News" column for Feb. 15, 1945.

No doubt in that happy postwar era when these aircraft are manufactured, they will be a boon to family transportation, but they will still have booms.

I'll bet your proofreaders consider people like me as the bane of their existence.

W. W. RUSSELL III.
Captain, Air Corps

Editor's Note: The piece on twin boom planes boomed and boomed through corrections on the galley sheets and finally came out with a boom instead of a boom. The boom came from many alert readers who want the twin boom planes to be a boon to the industry.

Obituary

Jack Knight

Jack Knight, 53, pioneer air transport pilot who held a flight record of 2,400,000 miles when he retired in 1937, died Feb. 24 in Niles, Mich. During World War I he was an instructor in the Army Air Corps, joining the air mail service in 1919. After 1928 he was a pilot for United Air Lines, later becoming its public relations director. Recently he worked for CAA and for Defense Supplies Corp. on rubber surveys in Brazil. Knight's best known exploit came in February, 1921, when Congress was threatening a refusal of further appropriations for the newly established air mail branch of the Post Office Department, then operating only daylight flights. To impress Congress, Post Office officials decided to stage a day and night transcontinental relay mail flight. Knight was chosen to fly the route between North Platte and Omaha, Neb. He took off from North Platte on the evening of Feb. 22, 1921, on one of the first night flights in the history of the air mail. Following the lights of bonfires set by farmers, he arrived in Omaha at midnight only to find that his relief pilot had been grounded farther east by bad weather and that the stunt had been canceled. Completely unfamiliar with the flying route east of Omaha, Knight insisted on taking his plane on to Chicago. Studying a railroad map by flashlight, and dodging barns and haystacks in an effort to get below a violent snowstorm, he flew through the night and arrived at dawn in Chicago, where another pilot picked up the mail and carried it on to New York. A cross-country flying time of 33 hours, 20 minutes was established, and Congress made an appropriation for the construction of the world's first airway lighting system.

Twenty-five Years Ago

Edward Musick, Aeromarine pilot, with J. J. Boland, company engineer, took off over snow-covered ice in an Aeromarine Flying Boat and flew over the steamship "Princess Ann," ashore off Rockaway Point. Finding the rescue work already had been accomplished, Musick returned and landed his Flying Boat successfully on the snow-covered landing field. (March 13, 1920)

Air Mail service was inaugurated between Barcelona and Las Palmas, Mallerca, a distance of 112 miles. (March 18, 1920)

The first successful flight from Cairo to Capetown was completed by Col. van Ryneveld and Major Brand. (March 20, 1920)

C. J. Zimmerman, pilot, made a successful trial flight in a new Aeromarine Model A. S. Ship's Scout, at Keyport, N. J. The seaplane hopped off after a run of five seconds. (March 22, 1920)

Fifteen Years Ago

Capt. Boris Sergievsky established a seaplane speed record for 100 kilometers, with payload of 2000 kilograms, of 143.77 mph, at North Beach, N. Y., in a Sikorsky S-38, two Pratt & Whitney Hornets. (March 13, 1930)

The Second Annual Buffalo Aviation Show was held at Buffalo. (March 22, 1930)

W. J. Fleming, in a Bach, established a speed record for 100 kilometers with payload of 2000 kilograms, of 142.66 mph, on a closed circuit. (March 26, 1930)

New Booklets

Homestead Industrial Sound Control, 45 Granby St., Hartford, Conn., has issued an illustrated booklet entitled "Sound Control For Industry" which describes aircraft engine and propeller test cell soundproofing installations.

A complete series of aircraft lubrication guides has been prepared by Esso Marketers in conjunction with engineers of the Chek-Chart Corp., and now is being distributed exclusively to Esso aviation dealers. The charts consist of 39 full color diagrams covering 25 makes of planes and 57 models ranging from grasshoppers to giant air transports. Every lubrication point in the plane to be covered is indicated in each of the charts, and a simple index system gives the lubricant to be used and how often.

Books

PLASTIC SCIENTIFIC AND TECHNOLOGICAL.
By H. Ronald Fleck, 325 pp. \$8.50. Chemical Publishing Co., Brooklyn.

This is an up-to-date and comprehensive book covering the scientific and technological aspects of the ever-growing plastics industry, and comprises a survey of the literature and a correlation of scattered data which should prove of value to men in the industry. The newest developments in plastic materials both in this country and in Europe are discussed in detail.

NO TUMULT, NO SHOUTING. By Lois and Don Thorburn. 148 pp. \$2.50. Henry Holt & Co., New York.

This is the story of the PBY Catalina told in text and pictures. It takes the reader from the factories in San Diego where the planes were built to Alaska where the men of Patwing Four were fighting off the first invasion of the United States in this war, and where the PBY was armed and equipped and sent off to fight. Don Thorburn, a naval lieutenant commander, obtained the material for the combat parts while he was stationed in the Aleutians, and Lois Thorburn, a writer for the *New Yorker*, traveled to San Diego to obtain the firsthand story of the men and women who built the Cats.



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now. Don't expect to keep whopping after the war. But we're prepared to wager that aviation is here to stay, and that we'll have what it wants in precision-engineered hydraulic and electronic equipment. ■ Your engineers and ours should get together. Our factories can translate their conversation into the devices and service you want.

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*Almost every American
benefits every day
from the products of
BORG-WARNER*



"THE WEDDING OF THE STEELS" at the Ingersoll plant, New Castle, Indiana. James Sessions catches the tense moment when soft center steel is poured in the final step before it joins with stainless steel to form "IngAclad." A similar process is used in making soft center plow mold boards. Alloy steels for saws and for the chemical and food industries come from this great Borg-Warner mill.

The products made by Borg-Warner are so numerous and varied that there is little doubt that some of them are serving "almost every American every day."

Borg-Warner makes essential equipment for farm and home and for the aviation, marine and automobile industries. And as you can appreciate, it takes a high degree of skill and experience in engineering, design and manufacturing to create these many essen-

tial products. Yet whatever the task, Borg-Warner is guided by one simple principle: "design it better—make it better."

These exceptional talents, now devoted to war needs, were developed, over the years, to produce ever better products at ever lower cost. When war ends these talents will again be at the service of your industry, ready to assist in the building and improvement of your peacetime products.

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American

ATC Flies Half Billion Miles in 2½ Years

Three-Fifths of Total Traveled During '44; Domestic Airlines Carry More Passengers

THE AIR TRANSPORT COMMAND has flown 500,620,546 miles in the past two and a half years compared to 372,047,149 miles flown by all the domestic airlines in the last three years.

More than three-fifths of ATC's total was flown during 1944, when its planes traveled 340,696,525 miles in domestic and foreign operations. Of its half-billion total, 420,725,786 miles were flown in international transport and 79,894,760 in domestic. These figures include the miles flown by contract carriers for ATC.

In 1944, ATC carried 1,327,820 passengers of which 130,000 were wounded soldiers, compared to the total for all domestic airlines of 4,061,217. Only 176,204

passengers were carried by military transport within the continental U. S. Of the total of 582,390 tons lifted last year, 397,735 were cargo and 41,477 mail.

In 30 months of operation, ATC reports total ton miles flown in transport were 1,243,136,927, of which 1,113,306,712 were foreign flights. Comparable figures for the domestic airlines for 36 months are 162,144,941. In 1944 alone, the Air Transport Command flew 858,407,753 ton miles.

New Appointments

New appointments have been made to fill the gaps in WPB's Aircraft Division. Eugene Dubuque, formerly with the Office of the Assistant Chief of Air Staff for Plans, has been made head of the Production Branch. Leo Panek has been made assistant to the director, Henry Nelson, and Jack Loesing, pilot of the War Production Board plane, will be technical consultant.

Passenger miles flown for its entire period were 3,476,067,095 with 2,434,853,439 being piled up in 1944.

Miles Flown by ATC in Ferrying and Transport Operations

	Combined Operations			Ferrying Operations			Transport Operations		
	Total	Foreign	Domestic	Total	Foreign	Domestic	Total	Foreign	Domestic
1942									
January	1,569,351	319,351	1,250,000	1,569,351	319,351	1,250,000			
February	2,902,958	507,758	2,395,200	2,902,958	507,758	2,395,200			
March	3,814,925	434,328	3,380,597	3,814,925	834,328	3,380,597			
April	3,256,058	632,267	2,623,791	3,256,058	632,267	2,623,791			
May	4,838,687	1,558,051	3,280,636	4,838,687	1,558,051	3,280,636			
June	4,206,491	1,061,967	3,144,524	4,206,491	1,061,967	3,144,524			
July	9,247,326	4,691,864	4,555,462	4,701,488	1,414,117	3,287,371	4,545,838	3,277,547	1,268,291
August	11,198,085	6,055,549	5,142,536	6,457,882	3,265,244	3,192,638	4,740,203	2,790,305	1,949,898
September	10,432,950	4,699,066	5,733,884	5,999,899	1,813,572	4,186,327	4,433,051	3,885,494	1,547,557
October	12,205,316	7,082,885	5,122,431	6,311,729	3,062,126	3,249,603	5,893,587	4,000,758	1,892,828
November	12,276,535	6,804,506	5,472,029	6,587,559	2,525,927	4,061,632	5,688,976	4,078,579	1,610,397
December	13,270,413	7,887,940	5,382,473	7,265,945	3,270,907	3,995,038	6,004,466	4,617,033	1,387,433
Total	89,219,095	41,535,332	47,683,763	57,912,973	19,885,615	38,027,357	31,306,123	21,646,717	9,656,406
1943									
January	13,877,079	7,813,856	6,063,223	7,182,019	2,616,332	4,565,687	6,695,090	5,197,324	1,497,766
February	16,224,420	9,306,377	6,918,043	8,743,369	3,471,163	5,272,206	7,481,051	5,835,214	1,645,837
March	20,735,879	12,986,857	7,749,022	12,201,077	6,289,118	5,911,959	8,534,802	6,697,739	1,837,063
April	21,694,958	13,703,503	7,991,455	12,941,259	6,631,841	6,309,418	8,753,699	6,871,662	1,882,037
May	25,491,075	17,589,958	7,901,117	15,792,717	9,811,806	5,980,911	9,696,356	7,776,152	1,920,204
June	24,387,623	16,073,419	8,314,204	13,860,095	7,470,427	6,389,668	10,518,528	8,602,992	1,915,536
July	22,909,042	14,394,590	8,514,452	11,702,486	5,282,724	6,419,762	11,206,556	9,111,866	2,094,690
August	22,974,068	14,033,447	8,940,621	11,340,826	4,534,496	6,806,328	11,633,242	9,496,949	2,136,293
September	23,131,763	13,978,880	9,152,883	10,642,237	4,003,532	6,638,705	12,469,526	9,975,348	2,514,178
October	27,809,097	15,816,332	11,992,765	14,469,572	5,097,765	9,371,807	13,336,525	10,718,567	2,620,958
November	27,467,541	16,474,794	10,992,747	14,394,963	5,823,656	8,571,307	13,072,578	10,651,138	2,421,440
December	31,929,879	21,773,739	10,156,140	16,734,906	8,717,086	8,017,820	15,194,973	13,056,653	2,138,320
Total	278,632,424	173,945,552	104,686,872	150,014,526	69,949,948	80,064,578	128,617,896	103,995,604	24,622,294
1944									
January	39,425,863	26,829,013	12,596,850	23,191,873	12,995,435	10,196,438	16,233,990	13,833,578	2,400,412
February	39,664,620	27,866,762	11,797,858	22,023,138	13,034,159	8,988,979	17,641,492	14,832,603	2,808,889
March	50,104,687	35,684,149	14,420,518	30,756,278	19,838,879	10,917,399	19,348,389	15,845,270	3,503,119
April	48,503,533	35,547,485	12,956,048	29,149,930	19,490,930	9,659,000	19,333,603	16,047,555	3,286,048
May	49,899,480	36,882,538	13,016,942	27,274,506	18,024,508	9,250,000	22,634,972	18,658,039	3,986,932
June	41,849,386	29,790,324	12,059,062	16,956,686	8,706,686	8,250,000	24,862,700	21,063,638	3,800,062
July	51,899,976	37,555,779	14,344,197	21,311,503	11,561,503	9,750,000	30,588,473	25,904,276	4,684,197
August	57,158,711	42,167,206	14,991,505	22,018,316	11,868,316	10,150,000	35,140,395	30,298,890	4,841,505
September	51,794,137	37,105,225	14,688,962	16,183,696	8,117,038	10,066,660	35,610,489	30,988,187	4,622,302
October	56,360,599	43,289,009	13,071,590	17,089,325	8,714,325	8,375,000	39,271,244	34,374,684	4,896,560
November	55,096,789	44,961,765	10,135,025	14,968,011	8,568,011	6,400,000	40,128,778	36,383,754	3,745,024
December*	53,157,796	43,825,796	9,332,000	13,295,796	7,295,796	6,000,000	39,862,000	36,530,000	3,332,000
Total	594,915,577	441,305,051	153,610,526	254,219,052	146,224,586	107,994,466	340,696,525	295,080,463	45,616,062
Grand Total	962,767,096	658,785,935	305,981,161	462,146,550	236,080,149	226,066,401	500,620,546	420,725,786	79,894,760

* Preliminary data.

Passenger Miles Flown in ATC Transport Service

	Total	Domestic	Foreign
1942			
Total	137,720,396	9,871,723	148,048,673
July	15,694,644	1,913,358	13,781,286
August	18,537,845	2,004,460	16,443,385
September	16,779,672	1,345,804	15,433,868
October	30,479,176	1,405,903	29,073,273
November	33,287,870	1,459,734	31,828,136
December	42,941,189	1,452,564	41,488,625
1943			
Total	883,463,230	35,930,363	847,562,867
January	40,306,170	1,829,153	38,477,017
February	44,506,539	2,139,025	42,427,514
March	51,909,314	2,603,264	49,306,050
April	59,264,903	3,229,380	56,035,523
May	68,796,963	2,347,366	66,449,597
June	82,224,635	1,942,877	80,281,758
July	80,240,576	2,519,539	77,730,037
August	83,538,010	2,208,097	81,329,913
September	89,969,385	2,884,146	87,085,239
October	89,905,606	4,262,922	85,642,684
November	93,527,379	4,709,988	88,817,391
December	99,234,660	5,454,606	93,780,054
1944			
Total	2,434,853,439	254,774,839	2,180,078,600
January	111,127,788	4,545,209	106,582,579
February	117,178,585	8,617,732	108,560,853
March	122,905,123	12,833,903	110,071,220
April	140,318,587	15,019,553	125,299,034
May	161,909,473	22,957,744	138,951,729
June	166,344,368	18,949,852	147,394,516
July	198,797,183	23,353,797	175,443,386
August	247,418,768	29,717,290	217,701,478
September	287,900,616	31,832,757	256,067,859
October	304,561,125	33,685,966	270,875,159
November	296,691,803	27,661,036	269,030,767
December*	299,700,000	25,600,000	274,100,000

* Preliminary data.

Ton Miles Flown in ATC Transport Service

	Total	Domestic	International
1942			
Total	64,367,514	14,500,099	49,867,415
July	6,439,011	1,334,471	5,104,540
August	8,106,280	2,684,798	5,421,482
September	8,414,636	2,230,850	6,183,786
October	12,532,323	3,136,577	9,395,746
November	13,482,954	2,762,165	10,720,789
December	15,392,310	2,351,238	13,041,072
1943			
Total	320,361,860	46,325,301	274,036,559
January	15,461,644	2,670,354	12,791,290
February	17,081,002	3,163,620	13,917,382
March	21,756,425	3,920,124	17,836,301
April	23,354,362	4,434,576	18,919,786
May	25,581,619	4,452,753	21,128,866
June	27,059,958	4,422,187	22,637,771
July	30,855,900	5,001,517	25,854,383
August	30,769,109	4,756,742	26,032,367
September	31,046,345	4,400,448	26,645,897
October	31,172,218	3,504,078	27,668,140
November	30,263,866	2,667,139	27,596,727
December	35,939,212	2,931,763	33,007,449
1944			
Total	858,407,753	69,004,815	789,402,938
January	39,632,935	3,227,169	36,405,766
February	42,922,452	3,706,281	39,216,171
March	47,983,152	4,748,248	43,234,904
April	48,653,127	4,796,203	43,856,924
May	56,066,936	5,475,797	50,591,139
June	61,773,539	6,018,082	55,755,457
July	74,248,596	6,565,498	67,683,100
August	88,470,569	7,622,807	80,847,762
September	88,391,991	7,560,910	80,831,081
October	100,704,723	7,545,670	93,159,053
November	104,238,731	6,544,150	97,694,581
December*	105,321,000	5,192,000	100,129,000

* Preliminary data.

Aviation Calendar

March 22-23—CAA Advisory Committee meeting, Washington.

March 26—Civil Aviation Joint Legislative Committee meeting, Washington.

April 4-6—Society of Automotive Engineers, National Aeronautics meeting, Hotel New Yorker, New York.

April 16—World Air Transport Operators meeting, Havana.

May 6-9—International Aviation Fraternity, first annual convention, Miami Beach.

May 20-27—Pan American Aircraft Exposition, Dallas.

June 2—Third Inter-American Telecommunications Conference, Rio de Janeiro.

Oct. 31-Nov. 3—1945 National Aviation Clinic, Oklahoma City. Pre-clinic conferences open Oct. 27. (Arrangements tentative, depending on ODT regulations in force at that time.)

Non-Scheduled Flying Committee Formed by CAA; Meets March 22

CAA's Advisory Committee on Non-Scheduled Flying, representing the industry and the private flyer, has been formed and will hold its first meeting in Washington March 22 and 23.

Members include William T. Piper, president of Piper Aircraft Co. representing manufacturers; John Groves, Air Transport Association, representing the airlines; Arthur Boreman, private flyer from Des Moines, representing consumers; Beverly Howard, Hawthorne School of Aeronautics, for the aircraft service operators; and Joseph Bergin, State Aviation Director for Utah, representing state aviation commissioners.

Regional representatives are: Region 1, Fred Weick, Engineering and Research Corp., Riverdale, Md.; Region 2, Harry Playford of St. Petersburg, Fla.; Region 3, William A. Mara, vice-president of Bendix Aviation Corp.; Region 4, Edward Garbacz, Central Flying Service, Little Rock, Ark.; Region 5, James C. Johnson, Springfield Flying Service, Springfield, Mo.; Region 6, Douglas Robinson, Air Safe Co., Tucson, Ariz., and a sportsman pilot; Region 7, Edward Williamson of Bearing Service Co., Seattle.

CAA members of the committee are John Geisse, assistant to the Administrator; Fred Lanter, director of safety regulation; and Jesse W. Lankford, director of the safety bureau. W. L. Jack Nelson, formerly assistant director of War Training Service, has been named executive secretary.

Glider Towed 1320 Miles

A Curtiss C-46 Commando recently towed a CG-4A glider 1320 miles in seven hours and 45 minutes, the Curtiss-Wright Corp. announced. The flight made by the Air Transport Command's India-China Division was from Karachi to a field in the Calcutta area.

Single Company Operation Opposed in Biddle Report

Competition Urged In World Aviation By Justice Dept.

ATTORNEY GENERAL Francis Biddle submitted to Congress March 5 a 105-page report on "International Air Transport Policy" prepared by the Department of Justice pursuant to the War Mobilization and Reconversion Act of 1944. Sixteen specific recommendations were made, highlighted by the assertion that the U. S. should not commit itself to a single company operation, and that a policy of competition should be adhered to in development of international airlines. Biddle also strongly recommended against surface carriers controlling international air transport services.

Stating that the legal and economic studies on which the report is based were undertaken as a result of the many legal questions submitted to the Department, Biddle summarized the 16 recommendations, text of which follows:

1. The international aviation policy should be formulated by the Government.

2. The U. S. should pursue a policy aimed at a more liberal legal framework for international aviation.

3. It would be in the interest of the U. S. to have the right of transit and the right to land for non-traffic purposes established as a universal principle for international aviation. Any arrangement less than a universal and world-wide arrangement respecting the right to land would be of limited importance for the U. S. For example, a reciprocal exchange

of landing rights with Great Britain, including the crown colonies but not the dominions, would give the British valuable rights and would give the U. S. almost nothing.

4. The advantages of direct Government negotiation of rights to engage in air commerce appear conclusive. However, the U. S. should reserve the right to direct that its air carriers negotiate with foreign governments relative to operating rights when that procedure appears advantageous.

Bar Exclusive Arrangements

5. Such intergovernmental agreements should be concluded as will be conducive to the creation of a sound and progressive international air service. These agreements should specifically provide (a) that the operating rights covered by the agreements may be made available only to air lines that are bona fide nationals of the countries concerned; (b) that such operating rights shall be of indefinite duration, subject to revocation only after consultation between the respective governments and due notice to the carriers; (c) that exclusive arrangements designed to block the granting of air rights or to discriminate against carriers of other nations are prohibited; (d) that no arrangement shall impose undue delays on the inauguration of international air services; (e) that no limitations upon the number of schedules, the size or character of the planes to be used, or the prices to be charged shall be imposed; (f) that appropriate standards with respect to safety of operations, airworthiness of aircraft, and competence of airmen shall be observed;

and (g) that each country shall enforce its own rules and regulations relative to customs, immigration, passports, quarantine, and air traffic control. Specific details of the operations to be conducted should probably not be spelled out in these basic agreements but should be left to the regulatory authorities of each country.

6. The nation's policy should seek to assure (a) that U. S. aviation will continue to be progressive in the development and adoption of the newest types of equipment and the best operating procedures; (b) that adequate incentives will compel efficiency in operation; (c) that the full economic potentialities of air transport will be realized by a constant widening of the market through reduction in costs and rates; (d) that healthy financial conditions will insure the inflow of adequate capital; and (e) that U. S. airlines will carry a volume of world traffic commensurate with the importance of the U. S. as a market for air transport services.

Should Encourage Private Operation

7. The U. S. policy should seek to maintain the economic conditions and the legal framework essential to the continuance of private operation of air transportation.

8. Government operation of international airlines should not be precluded where the absence of profit opportunities makes private operation impossible.

9. The U. S. should co-operate with other countries in securing for international air transport the use of those airports and airways which are indispensable to efficient and economical operations.

10. All international airlines should be permitted to use international airways, communications facilities, meteorological services, and airports without discrimination as to service and on an equally favorable basis.

11. The U. S. should seek an international understanding defining and limiting the financial assistance to be given to international airlines.

Recommends Competition

12. Any necessary financial support granted to airlines should be in a form which will make it possible to pursue a policy of competition in the development of international airlines.

13. The U. S. should not commit itself to a single company operation. This does not, however, necessitate unrestricted competition. Even if direct competition is advisable on only a few routes at the present time, the benefits of indirect competition can be achieved by authorizing different companies to operate over different routes.

14. Surface transportation companies should not own or control international air transport services.

15. The U. S. should seek to create conditions which will make it possible for its airlines to operate independently of any cartel restrictions.

16. The creation of a sound and progressive international aviation industry requires the establishment of an international organization to assemble and analyze factual information with respect to the operations of international air carriers and the laws and regulations of the various countries, the formulation of air traffic and safety rules, and the medium through which the aviation authorities of the several nations may consider and resolve common problems.

Traffic Lifted by ATC in 1944

FOREIGN

Tons Lifted

1944	Total	Cargo	Passengers (Incl. Bag.)	Mail	No. of Passengers
January	25,876	18,841	5,378	1,637	51,636
February	25,502	18,104	5,620	1,778	48,122
March	25,426	17,705	5,793	1,927	49,932
April	31,140	20,658	8,265	2,217	76,787
May	31,463	20,228	8,169	3,066	71,706
June	38,853	26,740	8,781	3,123	81,811
July	44,034	30,319	10,179	3,536	93,332
August	57,093	40,681	12,622	3,790	115,435
September	56,203	37,600	14,745	3,858	138,177
October	62,834	42,549	15,430	4,855	158,965
November	70,267	49,968	15,156	5,123	140,801
December*	66,656	44,768	15,420	6,468	147,890
Total	535,147	368,191	125,558	41,396	1,151,616

DOMESTIC

1944	Total	Cargo	Passengers (Incl. Bag.)	Mail	No. of Passengers
January	2,250	1,977	588	7	5,864
February	2,590	2,028	553	9	5,526
March	3,285	2,446	812	7	8,123
April	3,287	2,208	1,070	9	10,702
May	3,744	2,257	1,479	8	14,792
June	3,956	2,587	1,361	8	13,609
July	4,646	2,969	1,670	1	16,757
August	5,006	2,943	2,055	0	20,552
September	4,834	2,683	2,145	0	21,452
October	4,983	2,851	2,126	0	21,264
November	4,417	2,650	1,761	0	17,609
December*	3,945	1,945	1,996	4	19,954
Total	47,243	29,544	17,620	79	176,204
Total Foreign and Domestic	582,390	397,735	143,178	41,477	1,327,820

* Preliminary data.

Two-Thirds of Civilian Type Surplus Planes Already Sold

Only 745 of 21,066
Military Aircraft
Disposed of So Far

MORE THAN TWO-THIRDS of the civilian type planes declared surplus have been sold, or 7013 of a total of 10,180, the Surplus Property Board has announced. This total does not include the surplus transports which have been leased to domestic and foreign applicants.

In January, 459 civilian type planes were sold, leaving a "diminishing supply" of liaison, utility cargo and medium transports. A total of 861 civilian planes were declared surplus during the month. Sales are made through Reconstruction Finance Corporation, the disposal agency for surplus aircraft.

In contrast to the rapidly selling civilian type planes, SPB reports a surplus of

21,066 military planes of which only 745 have been sold. The bulk of these sales have been of primary trainers which accounted for 604 of the 745, leaving 7519 PTs still on hand. SPB points out that although they are classed as military types, PTs have many characteristics which make them suitable for personal and certain commercial operations. In January, 251 primary trainers were sold, but no basic or advanced trainers were sold since their flight characteristics and high cost of operation make them impractical for civilian use.

Surplus military planes such as heavy trainers, and obsolete fighters and bombers, which have no general market value, are being held in RFC storage fields until they can be distributed for educational purposes or until they can be salvaged for scrap.

The table at right lists civilian type surplus aircraft as of Feb. 1.

Type	Total Sold	Balance on Hand
Liaison—one engine		
Taylorcraft .....L3	736	604
Ryan .....L10	1	...
Aeronca .....L3	723	246
Piper .....L4	23	301
NE1	...	5
Vultee .....L5	...	5
Interstate .....L6	90	77
Stinson .....L9	5	4
L12	...	3
GQ1	...	1
Total	1584	1246

Utility Cargo—one engine		
Beech .....C43	18	27
Fairchild .....C61	17	13
Noorduyn .....C64	...	1
Howard .....C70	5	4
Spartan .....C71	6	3
Waco .....C72	3	6
Cessna .....C77	...	2
Harlow .....C80	1	2
Stinson .....C81	8	14
Lockheed .....C85	1	...
Fairchild .....C86	1	2
Cessna .....G94	...	2
Vega .....C101	1	...
Fairchild .....GK1	...	11
Stinson .....GQ1	...	1
Fairchild .....JK1	...	1
Stinson .....SR10P	...	2
STVP	...	1
Waco .....VK87	...	1
Rearwin .....C102	2	1
Crumman .....C103	1	...
Boeing .....C108	...	1
Total	64	98

Light Transports—two engine		
Douglas .....A4	1	...
A14	...	2
Lockheed .....G35	...	1
UC36	...	4
UC40	...	7
Beech .....UC45	...	2
Cessna .....UC78	4	1578
Lockheed .....J02	...	1
BO30	...	1
Total	5	1596

Medium Transport—two engine		
Douglas .....C32	...	3
C33	...	1
C34	...	1
C38	...	1
C47	...	2
C49	...	11
C53	...	92
UC67	...	11
Lockheed .....C56	...	1
C57	...	2
C59	...	2
C60	...	29
Curtiss .....C76	...	12
Sikorsky .....JRS1	...	2
Budd .....RB1	...	14
Douglas .....R2D1	...	1
SM73	...	1
SM82	...	1
Total	...	187

Heavy Transport—two engine		
Curtiss .....C46	...	1
TOTAL	1653	3126
Other Civilian Types used in War Training Service	5360	39
Total Civilian Types	7013	3167

* Most of these have been allocated to domestic and foreign airlines. Some of the balance cannot meet CAA requirements for commercial operation.

Strides in Jet Propulsion Praised in Arnold's Report

JET PROPULSION has made such strides during the past year that the Bell-built P-59 has been classed as a trainer, H. H. Arnold, commanding general of the AAF, disclosed last fortnight in a report to the Secretary of War.

The 96-page report deals chiefly with the AAF's accomplishments in the several theaters of war during the past year. Special mention was made of the B-29, which Gen. Arnold described as "our most potent 'softening up' weapon for use against the inner zone defenses of Japan."

The report said that B-29 production by the end of 1944 had reached a completed plane every 24 hours from the four plants producing these aircraft.

Other new planes mentioned were the B-35, B-36 and B-42, all of them bombers "which we expect to be more powerful and capable than those now in operation."

Radar developments were acknowledged in the report, but Arnold said that "owing to the continued blackout of technical details and the tactical use of radar devices, it is impossible to do more at this time than to call attention to the fact that the AAF, in collaboration with other services, has made many important contributions to the development of this potent weapon which has done so much to increase our effectiveness on all fronts."

Weather forecasting techniques developed during the past year included global weather forecasting, used primarily in B-29 operations in the China theater; mobile weather stations, which are now operating in Italy, France and the Pacific, and new forecast techniques which include the use of high frequency radio in storm detection and the determination of upper air winds by the reflecting principle.

Among newly developed aircraft weapons—primary objective of future conflicts.

ons were rockets, used on P-47s and B-25s. Modified and improved models of the robot bomb, the report said, "soon will be available for possible use—this time by the Allies."

Developments in runway surfacing included the steel pierced-plank, which the report said "has continued to perform outstandingly in all theaters of operation," and an aluminum pierced-plank, developed to permit transportation to advance airfield sites.

Achievements of the Air Transport Command were reflected in these figures: ATC delivered a total of 40,000 planes overseas up to Jan. 1, 1945; flew 28,000,000 miles a month in transport operations in 1944, or 340,000,000 miles for the year; in 1944 some 560,000 tons of high priority passengers, cargo and mail were carried by ATC and most of the 1,200,000 passengers flew over foreign routes.

Arnold said the ATC network of routes now totals 161,000 miles, of which 118,900 is beyond the continental limits of the U. S. "A plane is crossing the Atlantic every 13 minutes, carrying whole blood for the wounded, along with vital personnel and cargo, and bringing back casualties," the report states, adding that in 1944 ATC carried an estimated 130,000 patients from the Ground, Service and Air Forces, Navy and Allies.

Strides also were reported by the AAF in aviation medicine, development of the flak suit and helmet, aviation psychology altitude testing and personnel equipment, and rehabilitation and welfare. The report is concluded with a 12-point program for the building of the nation's airpower, coupled with a warning from Arnold that the U. S. mainland will be the

Plans Perfected for Dealers To Sell Primary Trainers

Bid Plan Unsuit To Disposition of These 7580 Planes

THE AVIATION DIVISION of the Surplus War Property Board is perfecting its preparations for disposing of 7580 surplus primary trainers through aircraft service operators on a commission basis.

Lt. Col. William B. Harding, chief of the Division, also has revealed that there will be very few more personal type planes for the Government to declare surplus.

Pointing out that the personal plane is mainly a "pre-war surplus" used by War Training Service, he said that the bulk of the WTS planes have been sold and that the AAF has used heavier planes. The limited number of "grasshoppers" produced during the war are being used, and will be disposed of, overseas.

Defends Sealed Bids

He described the sealed bid method of disposing of the WTS planes as "the easiest way for the Government, as any other method would have required an inspection staff. We used the system because it was moving the planes." He explained that fixed base operators are complaining because the planes are selling too high and they have no chance to earn a commission, but he added that the Surplus Property Board's duty is to protect the taxpayers' money.

Primary trainers also are grouped as Class C or personal type planes but since the supply of these planes far exceeds the demand, Harding believes the competitive bid method of disposal is unsuitable. Four solutions were offered by aviation interests brought together for a meeting with SPB a month ago. According to Colonel Harding, the Aeronautical Chamber proposed that all primary trainers be scrapped, contending they are unsuitable for private flying. Edward Warner, vice chairman of the Civil Aeronautics Board, advocated selling all PTs at a price which would move them all. He pointed out that the Jenny was the laboratory for the development of countless flyers who could not afford normally priced planes and that the sale of these planes did not interfere with the market for new planes since it appealed to a different type of buyers.

A third opinion was that the primary trainers should not be sold but given away to fixed base operators under a CAA training plan similar to the War Training Service. According to Colonel Harding, the operators disapproved of this plan feeling they would rather buy the planes outright than have to fill out Government reports on them forever.

The solution finally reached at the meeting was closest to the proposal of Reconstruction Finance Corp. to move them at whatever price would bring the largest return to the Government. Colonel Harding said this would have to be somewhere between getting rid of all the planes at \$100 apiece and selling a very

few at \$2000. The planes will be moved through the fixed base operators on a commission basis.

Almost all combat planes will have to be salvaged for scrap. "Except for a few minor activities like aerial photography, there are almost no civilian applications for heavy trainers, fighters and bombers," Colonel Harding stated.

Combat planes still within the United States which are declared surplus are advertised for 30 days with indication whether they are eligible for CAA certification. If there are no buyers the planes will be condemned and salvaged for scrap. He added that condemnation procedures are being rapidly worked out, but little salvaging can be done until the manpower situation improves. Sales of aluminum scrap are being temporarily suspended because of its current low market value.

The market is being tested now to find a fair price to set on these combat aircraft. The price must exceed the value of the component parts and scrap value of the residue to prevent speculators from buying the planes in order to break them up and sell the parts cheaply.

"But our major problem is the disposal of surplus parts and equipment," the SPB official stated. "For every dollar we put into the maintenance, care and sale of aircraft we have to put up four dollars for maintenance, care and sale of equipment and parts."

Colonel Harding pointed out that it required highly specialized personnel to handle the task of sorting and-classifying the thousands of component items and that SPB has so far failed to find the appropriate group to carry out this assignment.

"We expect to get all this settled soon," he said. "Then we will start immediately to ascertain demand, to distribute machinery and catalogs."

Manufacturers Know Products

He pointed out that the Army and Navy have many officers qualified to handle component disposal "but they don't want the responsibility." He said the alternative was to have it done by the manufacturers and distributors who know the products, with policing by Defense Plant Corp. DPC would make a contract with the original designer of each article to sort and distribute all his components with DPC paying costs plus a fee of 5% of sales. Dealers and distributors would get their regular commissions. However, under the Surplus Property Act, such a plan requires the approval of the Department of Justice which has so far refused to agree.

Colonel Harding said the Government intends to distribute a lot of the equipment to schools and colleges but that "there are political issues involved in giving away anything."

He admitted small hope of finding large scale non-aviation applications for aircraft parts and equipment, but hinted they might hold contests for suggestions of alternate uses.

High Conversion Cost Of C-54s is Alarming

Lt. Col. William B. Harding, chief of the Aviation Division of the Surplus Property Board, has revealed that his office is initiating studies to determine conversion costs of C-54 transports.

Harding hinted that when the war ends and hundreds of C-54 planes are declared surplus, the Aviation Division will face a real headache because high conversion costs may make it undesirable for the airlines to purchase them. Some estimates in industry circles have placed the conversion cost of the C-54 as high as \$250,000 particularly on planes that have had hard war usage. The cost of converting a new C-54 to airline use would amount to at least \$60,000, one industry engineer stated.

While conversion costs of many C-47s have been more than \$75,000 and some more than \$100,000, Colonel Harding pointed out that the airlines' need for planes and the lack of a competitive problem as far as industry is concerned had made the C-47 a highly desirable type of equipment. He said many of the airlines were interested in C-47 types also for cargo carrying uses, particularly the model with the heavy floor.

32,000 Planes Shipped To Allies by Lend-Lease

Thirty-two thousand planes of all types were delivered to the Allies under the Lend-Lease Act as of Dec. 31, a recent report to Congress reveals.

Russia received the greatest number, 12,000. The United Kingdom was next with 8500; the China, India and Australian theater third with 6500; and the Mediterranean area, including Africa and France, fourth with 5000.

The report reveals that up to Dec. 1, a total of \$1,965,073,000 worth of aircraft and aircraft parts were shipped to the United Kingdom. The value of aircraft and parts sent to Russia was given as \$1,376,253,000; to Africa, Middle East and Mediterranean area, \$805,632,000; to Latin America, \$91,494,000; to Australia and New Zealand, \$294,806,000; and to China and India, \$502,254,000.

Chicago Air Bid Pushed

Mayor Edward J. Kelly has asked the Chicago City Council for authority to petition the Civil Aeronautics Board to declare Chicago a port of entry for international air travel and give the city direct and unbroken service to foreign countries, especially Canada and Latin America. Kelly pointed out that Chicago is almost at the exact geographical center of North America in relation to points in Central and South America, and is nearer than New York for such air travel.

Aviation to Have Major Role At Radio Conference in Rio

Industry Meetings With Government Set Prior to June 2

WHILE AVIATION was very much the Cinderella of the last International Telecommunications Conference in Cairo in 1938, all indications are that it will play a different and far more important role at the forthcoming Third Inter-American Telecommunications Conference which will convene in Rio de Janeiro June 2.

The Rio conference will be empowered to revise Inter-American frequency allotments, although it is doubtful whether any moves will be taken on this matter until the general world position and requirements are known. However, its importance to aviation interests cannot be overemphasized since it also will serve as a sounding board to determine the reaction of other American nations to United States proposals in preparation for the next all-important international conference.

Government Men Only

According to the rules of the Inter-American Conference, the official U. S. delegation at Rio will be limited to representatives of Government agencies and departments. These will include the Army, Navy, Coast Guard, Federal Communications Commissions, Interdepartmental Radio Advisory Committee, Civil Aeronautics Authority, and the Telecommunications Division of the State Department. The chairman of the delegation has not yet been selected, but he probably will be a State Department official from outside the Telecommunications Division or a member of the Senate, and may possibly be someone with definite aviation background.

In addition to the official delegation industry representatives may attend the Conference as observers and technical advisers to the U. S. delegation. D. W. Rentzel, president of Aeronautical Radio, Inc., already has indicated that he will attend in this capacity, and other industry representatives desiring to do likewise should apply to the State Department for certification.

Aviation interests will have still further opportunity to present their views and requirements at a series of industry-Government meetings which will be held prior to the Conference to formulate U. S. policies. The Telecommunications Division has an extensive mailing list of interested companies and organizations, and will send preparatory documents and advance notice of the preliminary meetings to all those appearing on this list. Companies and organizations desiring to be added to this mailing list should write to the State Department, or to F. C. de Wolf, chief of the Telecommunications Division.

Further evidence of the increased importance being placed on aviation radio in the entire telecommunications picture

is found in the Telecommunications Division itself. In a recent talk before the Veteran Wireless Operators Association in New York, de Wolf made constant references to aeronautical radio, saying that what radio in its infancy did for safety of life at sea, it is now doing for aviation in the air.

Discussing what we expected to accomplish at the next international telecommunications conference, he added:

"In the first place, we shall be confronted with a revolutionary expansion of aviation. Before the war it was international; now it is global. Air and weather services will expect a place in the spectrum commensurate with their new importance."

Referring to what may be expected in the future radio world, he suggested the centralization and unification of aviation radio services by Government agencies such as the Civil Aeronautics Administration and private co-operatives such as Aeronautical Radio, Inc.

And as a final indication of the important part aviation services are expected to play, the Telecommunications Division has announced the appointment of Maj. George M. Kinsey, previously in the office of the air communications officer, Army Air Forces, as a divisional assistant handling all matters pertaining to aeronautical radio, the first time that aviation has been so represented in the Division. Maj. Kinsey, who has assumed his new duties, was at one time with Transcontinental & Western Air, and later handled communications for the Ohio State Police.

Camacho's Successor Named

Sr. Ing. Martinez Tornell has been appointed Secretary of Communications and Other Public Works of Mexico to succeed the late Gen. Maximino Avila Camacho.

Boston Second Test Site For Arinc Operation

Boston has been selected by the directors of Aeronautical Radio, Inc. as the second city in which consolidation of all airline communications facilities under Arinc operation will be given an exhaustive trial. Consolidated operation in Boston is expected to start in about eight weeks. Plans for Arinc operation of facilities in Toledo, first city selected for the test are entering their final stages, and Arinc expects to take over from the individual airlines within the next six weeks.

Curtin Gives Australia Airline Nationalization Proposal His Blessing

Prime Minister Curtin, on resuming his position as head of the government in Australia after a long absence due to illness, has given his blessing to the decision of his Cabinet to nationalize the interstate airlines. After saying that he was in accord with the decisions taken by the Cabinet in his absence, he added:

"From my study of this question I have come greatly to admire what Canada has done under government ownership and control of airways and I have yet to hear of Mackenzie King being accused of sponsoring a policy of socialization."

Prime Minister Curtin had declared during the election campaign of Aug., 1943, that the Commonwealth Government had no power to socialize any industry.

Now that the Prime Minister has given the airline "grab" his blessing, the operators appear faced with an uphill fight in trying to block its passage. The move for the Government to nationalize the airlines will come up during the session of Parliament which opened Feb. 21. It is not expected to come before the session for some time, however, and action on it may be deferred until the next sitting.

War Demand for Aluminum Soars

COPPER AND ALUMINUM requirements for the military are rising and can be met only if additional manpower is found for the non-ferrous metal industries, the War Production Board has announced. It is pointed out that, in the case of aluminum, the total demand has increased far above the first quarter, making it difficult to increase production of forgings, extrusions, tubing and sheet sufficiently to meet the demand. "It has been possible to make 25,000,000 pounds of aluminum available for deferred allotments under the spot authorization procedure during the second quarter," officials state.

Total allotments for the second quarter of 1945 for some controlled materials compared with original allotments in the first quarter are given in the following table:

	Second Quarter Pounds	First Quarter Pounds
Copper Sheet and Strip	1,032,850,000	754,385,000
Copper Rod, Bar and Wire	335,368,000	307,487,000
Copper Tube and Pipe	102,900,000	95,163,000
Unalloyed Brass Mill Products	121,797,000	122,299,000
Copper Wire Mill Products	241,961,000	239,874,000
Foundry Products	310,818,000	334,950,000
Unclassified Copper Products	20,500,000	46,000,000
Aluminum	810,556,000	660,584,000

Lockheed P-80 Jet Fighter Object of Production Drive

New Shooting Star Faster Than Any Jap Or German Aircraft

A NEW JET propelled fighter—the Lockheed P-80 Shooting Star—which is not only faster than any plane the Germans or Japanese have yet flown, including the tailless Messerschmitt 163 rocket interceptor, but also is able to operate over any of the ranges over which present day conventional pursuit ships are called to perform, has been disclosed by the Army Air Forces following more than a year of secret tests.

Today the Shooting Star is the object of one of the most intense production drives of the entire war at both the Lockheed factories in Burbank and the North American Aviation plant at Kansas City.

The new ship is small and light in comparison with conventionally powered

fighters, but it can carry heavy loads of ammunition, photographic equipment, bombs and fuel. It is extremely maneuverable through the use of an hydraulic aileron boost and electrically-operated flaps, and its rate of climb and angle of climb at high speeds are superlative. Its ceiling is well above that of propeller driven planes.

The P-80 is powered by a new General Electric turbo-jet engine which produces more than twice the power of the earlier G-E models and is claimed to be the most powerful aircraft engine in the world today. Based on the principles developed by British Air Commodore Frank Whittle, it utilizes a new alloy capable of withstanding temperatures of 1200 degrees Fahrenheit. The new engine is being produced at the G-E plant in Syracuse and by the Allison Division of General Motors Corp.

The fuselage of the Shooting Star is lacquered to a high polish to provide

New Jet Fuel Produced

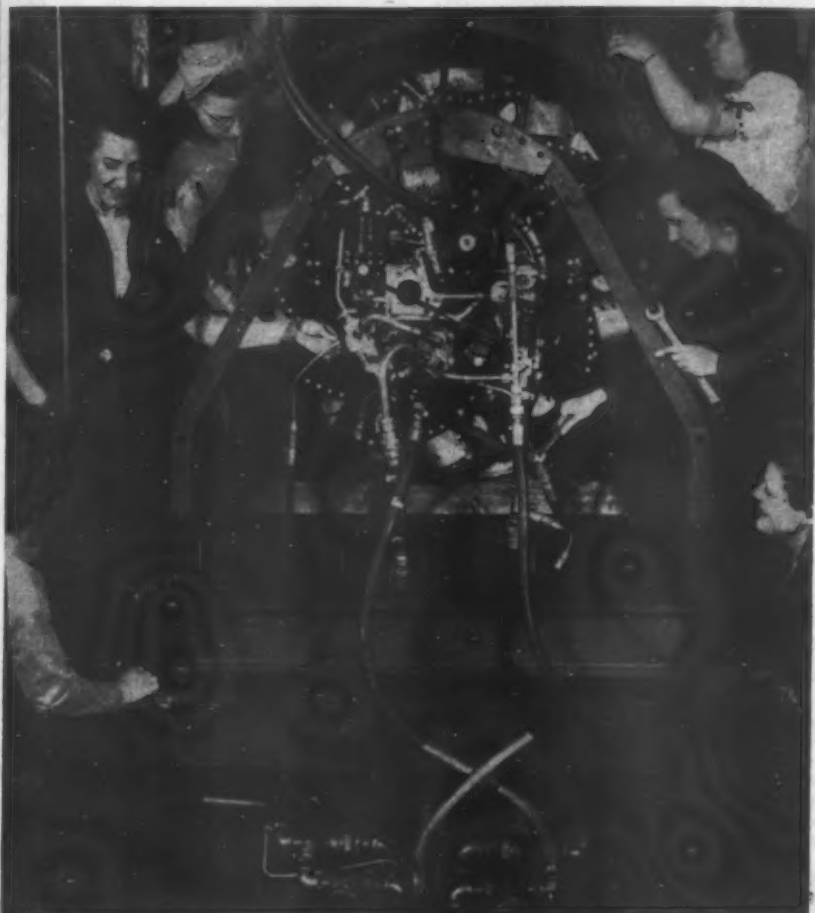
A new fuel and new lubricants for jet-propelled fighters are now being produced by The Texas Co. for the Army Air Forces. The fuel is described as being somewhere between kerosene and gasoline. The new lubricants are designed to withstand temperatures ranging from 80-90 degrees below zero to 250 degrees above.

minimum air resistance at speeds which it is intimated surpass that of sound (about 800 miles per hour). The cockpit is pressurized, the first time a fighter plane has been so equipped, and is located forward of the wing. It is roomy enough to permit wearing of "G" suits, a pneumatic flying suit designed to minimize the effects of high speed maneuvers on the human body. Armament is located in the nose for the most effective concentration of firepower.

The wing is so refined as to class it as a brand new type and has a knife-like leading edge and other aerodynamic innovations.

One of the unusual features of the new ship is the engine installation with the air entering through streamlined intake ducts nestled at either side of the fuselage just forward of the wing leading edge rather than through the nose as in previous single-engine jet propelled planes. From the ducts the air flows

(Turn to page 80)



G-E Turbo Jet—This first picture of America's newest plane engine shows a G-E jet power plant being connected for test at the Lynn, Mass., plant of General Electric Co. Similar engines are being used to power the Lockheed P-80 Shooting Star, described by the War Department as the fastest fighter in the world today.

British Gloster Meteor

In Action; Another Jet

Plane Being Designed

Coincident with the announcement of the Army's Lockheed P-80 Shooting Star, the British Air Ministry disclosed that its Gloster Meteor has been in action for several months and is as yet the only Allied jet-propelled fighter to see combat.

The Meteor was designed and built by Gloster Aircraft Co. whose Gloster E 28/39 was the first turbine jet aircraft in the world to fly (May, 1941). It is powered by two Rolls Royce engines manufactured to the basic design of Air Commodore Frank Whittle collaborating with Power Jets Ltd. and the British Thomas Houston Co. A twin-engine monoplane of very clean design, it first flew experimentally in March 1943, and since then production types have been considerably improved.

When the flying bombs menaced London last summer, the Meteor was pressed into service to combat them, and scored its first success on Aug. 4. Subsequently it shot down a substantial number of the robots, and proved to be substantially faster than the pilotless craft. The Rolls Royce engine in the Meteor is claimed to be more efficient and of longer life than the Jumo engine of the Me.262.

In addition to the Meteor the British have another jet fighter designed by de Havilland Aircraft Co., Ltd., which is now in an advanced stage of development. It too has engines manufactured on the basic principles used by Air Commodore Whittle.

Report from Canada

Canada Willing to Turn Routes Over to Americans to Operate

Lines Would be Run By U. S. in Fact, by Dominion in Theory

By AUSTIN F. CROSS

THE LONG-TERM air policy of Canada has been formed into a hard, clearly discernible pattern as the result of the new civil air transport agreement with the United States.

Now if you look at the thing superficially, it would seem that Canada and the U. S. have "divided" up the airlines, like kids playing marbles. Actually, there is a much more permanent pattern to all this. Back of the actual lines doled out, this to Canada, this to United States, is a far-reaching plan. First, a principle of division has been reached. Canada and the U. S. get together, talk over what they want, and coldly, impartially, agree that one country should have a certain route. Then, as a sort of quid pro quo, or "evening up," if you like, the other country gets something just about as good. Canada gets something she wants. Then U. S. gets something she wants. So it goes. Remember how we used to play baseball, and grab a flying bat to settle who'd bat first. We'd go hand over hand to the top of the bat. Somebody would bat first, but there were no hard feelings because the other fellow always had his turn later, and often batting last was better than batting first. It's the same in the air. The country that gets the second route might like it better, after all, than the first.

Canada Lacks Equipment

Then there is the next point. Canada, truth to tell, has not the equipment to fly these routes. First, we never did have it. Secondly, we have been at war since Aug., 1939. The Americans have the planes. Therefore, it is certain that they can handle their own airlines. There is considerable question whether Canada can. Actually now, she does not care. She can cede them temporarily to Uncle Sam.

For Canada a great victory was achieved when she got assigned to her, certain routes. True, she was entitled to them, but until Uncle Sam, a little tough these times, and apt to be selfish, made the actual admission of Canada's right, people here felt uneasy.

Now, with the Americans admitting her right to certain air lines, Canada is willing to turn them over to the Americans to run. Thus, the lines will be operated by Canada in theory, by United States, in fact. Uncle Sam will become Jack Canuck's agent. This seems to make everybody happy about the whole thing.

Again, the Americans are willing to try and run lines that do not promise too heavy a payload. For Canada to undertake the pioneering of such lines, and to nurse them along to the black side of the ledger, is unthinkable. But the Yankee is a gambler, and he can make money grow where nobody else can. So Canada is only too happy to have the "rich" Americans step in.

Once more, private enterprise always is more aggressive than government ownership, even with so enlightened a man as Hon. C. D. Howe at the controls. Thus, the rather unwieldy government-owned Trans-Canada Air Lines may not step into a spot as readily as a quick-action American airline. Governments usually step in and supply service where the demand already is; private ownership often steps in to develop service, hoping to create a market by so doing. The government is usually a sure-thing operator in such instances, where private ownership takes a chance.

There is then, discernible, the pattern of operation. Canada will operate some routes. She will "temporarily" cede Americans other routes. If the Americans make a good job of those routes, "temporarily" may mean a long time. This writer's guess is that if a private line comes into Canada and gives good service, no government line will want to oust it. In fact, no government line can oust it. There will be some argument about where private lines go, and won't go, and where government lines go, and won't go. But the plain fact is that Canada for

a while is going to have government ownership of air lines, and that United States is going to have private lines. Thus we shall see government lines from Canada flying to American air terminals, and privately owned lines from the U. S. alighting on government owned airfields in Canada. And nobody will give a hoot as long as the public is served well.

Of course, if there is any change in government, and the Progressive Conservatives get in, watch for a resurgence of private ownership, and competitive service between Canadian Pacific Airlines and Trans Canada, all over Canada.

'Partial Flop' at Chicago

However, it is well to study the recent air developments, to see what we can expect in future. There was the partial flop of Chicago. Then came the lovefest in New York between Canadians and Americans, with everything coming out beautifully. Now with the announcement of new air routes, the formula is clear. Whenever either country wants to have a new air route, the Canadians and Americans have a luncheon someplace, and after the coffee and cigars will come an agreement.

The way that private ownership and public ownership are integrating, and the ease with which these two countries can stick together the north half of this continent with new air routes across the international line, should combine to show the world how it ought to be done.

Better Planes and New Routes To Open Modern Era in Canada

CANADA'S transcontinental plane service will be drastically revised and greatly improved within a short time, it has been learned through the Department of Transport.

New features will be: Faster planes, bigger transports, more frequent flights, new routes, and luxury service.

Canada has been getting by, and often just barely getting by, with the equipment of 1939. True, there have been additions, but substantially, a man boarding a plane today would not note any great difference in the machines now and six years ago.

Canada is getting some four motor Douglas DC-4's. These will be much bigger, and will accommodate 49 passengers. They will make better time. Time, of course, also will be saved by a new route.

There are two reasons why Port Arthur has been chosen for the new airport westbound. First, it is directly on the route from Montreal to Winnipeg, across the lakes. Secondly, Port Arthur is the home town of Hon. C. D. Howe, Minister of Munitions and Supply, and long time czar of Canadian Aviation.

Those who fly west know that the present Trans-Canada Air Line's route runs from Toronto straight north to North Bay, or via Ottawa direct to North Bay. Then, there is a further flight north for 250 miles to Kapuskasing before making a right angle turn to go due west to Winnipeg. With all due respect to Kapuskasing, it is

no great revenue center, and the stop is made for service only. True, passengers may use that airport, but they are only incidental to a transcanadian service.

The new air route will go northwest from Toronto, over the Great Lakes, and on to Port Arthur, Ont. There is a possibility that The Soo might be developed as a flag stop, as it would be handy for both the American Soo and the Canadian counterpart. This airline from Toronto direct to Port Arthur also is on the airline to Winnipeg, and even if Douglas planes were not faster the mileage saved would accelerate the service.

From Winnipeg the service will be west over the same itinerary, via Regina and Lethbridge to Vancouver.

The present air service calls for three transcontinental trips each way each day. They are often oversold, and that companion of wartime flying, the priority, always is raising its ugly head. With the new Douglas DC-4's, it is planned to operate four trips each way each day, over the new Port Arthur cut-off. A fifth flight each way will be done with the older, two-motor planes, via North Bay and Kapuskasing.

The DC-4's are expected to surprise Canadians. Until now, the most sumptuous planes are the 14-seat Lockheeds, generally speaking. Some of these are no longer new. But the slick, streamlined Douglas aircraft, accommodating 49 persons, is expected to set new standards for Canadian air travel.

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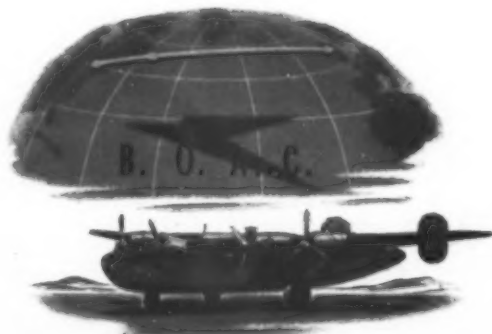
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Over a 2000 mile North Atlantic route that often becomes 3000 miles against 90 knot headwinds, British Overseas Airways Corporation maintains year-round scheduled service on a trail blazed through some of the worst weather that ever beset an airline.

Heavily-loaded takeoffs, fast climbs to surmount treacherous icing conditions, and high-altitude cruising at sub-zero temperatures are among the requirements met by modified Liberators equipped with Curtiss Propellers.

This achievement is outstanding among the many transoceanic schedules now being maintained in all parts of the world by Curtiss equipped aircraft—forerunners of giant craft in which world travelers will find Curtiss automatic synchronizers and aerodynamic braking providing a new level of passenger comfort.

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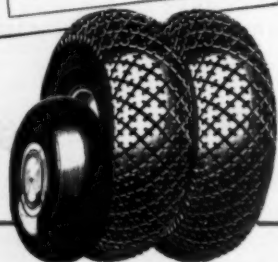
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Centralized Space Control Great Help to Trans-Canada

17 Teletype Circuits With 6000 Miles of Lineage Included

(Because of several unique features of the reservations department of Trans-Canada Air Lines, this article by C. E. Woolley, supervisor of reservations will be of interest to airline traffic personnel in the United States.)

By C. E. WOOLLEY

WHEN TRANS-CANADA Air Lines inaugurated passenger service a reservation system was used in which each city on our routes was allotted a number of seats on each flight operating through that city. This allocation was based on the average requirements and of course the daily flow of traffic from cities was subject to wide daily fluctuations. This system was followed by most air lines and is still being used to varying degrees by some companies. Our experience with this system was that cities found it necessary to frequently request space from other cities in order to complete reservations required for their passengers. The principle followed was that cities would immediately request any additional space required from another city, who would confirm from their allotment if possible, or forward the request to another city for similar handling. Frequently a request for trans-continental space was handled by as many as five or six cities before all the required space was obtained or it was learned that no space was available for the passenger.

At that time the method of communication used for reservations traffic was radio telegraphy. Frequently radio conditions would not permit transmission of traffic for extended periods and commercial telegraph was used. With the rapid increase in flights operated and extension of routes this reservations system and communications facilities did not allow us to offer the desired type of service to our passengers. These factors also had a detrimental effect on our passenger load factor and were reflected in the passenger revenue figures.

First Teletype in 1940

In 1940 we placed our first teletype circuit in operation between Toronto, Ottawa, and Montreal, and at that time inaugurated our system of centralized space control at Toronto. This first office was appropriately named Central Control and upon opening only three reservation agents were assigned to the office, and space on all flights operating between Toronto, Ottawa, and Montreal was controlled by that office. It was immediately apparent that this type of space control was efficient and our load factors on the flights controlled in this manner were increased by more than 10 per cent. Additional teletype circuits followed in rapid succession until today there are 17 teletype circuits having a line mileage of more than 6,000 miles.

A year later a similar space control office, known as Secondary Control, was

opened at Winnipeg for the control of all westbound flights operating from Winnipeg to Vancouver and Edmonton, and eastbound flights Vancouver and Edmonton to Toronto. In the same year service from Toronto to New York was inaugurated and a reservations and telephone answering service was started in New York and controlled space on the flights from New York to Toronto. Services in the Maritimes were expanded and a new route from Moncton to Newfoundland was inaugurated. To facilitate reservation handling in this territory, Atlantic Control was established in Halifax to con-

ondary Control at Winnipeg was moved to Edmonton and was renamed Western Control to provide a better arrangement of teletype circuits in western Canada.

Before placing this system in effect our planning showed several very worthwhile advantages of centralized control:

(1) Specialization by a small number of reservation personnel would increase efficiency.

(2) Better utilization of space on flights by having complete records of flights controlled by one reservation agent.

(3) Centralized records would provide easier access to material for survey purposes.

(4) Complete records for flights in one office enabled Space Control and Flight Control to quickly and efficiently plan irregular routings which would be advantageous to passengers.

(5) The combining of space control functions with teletype communication



Telephone Room

rol reservations on flights operating in that territory. Our teletype circuits now connected all city traffic offices and airport stations and space control offices formed the hub of teletype circuits in their respective divisions with circuits terminating at these offices. This, of course, resulted in these offices being not only reservation control offices, but teletype relay stations. During 1944 Sec-

ondary Control at Winnipeg was moved to Edmonton and was renamed Western Control to provide a better arrangement of teletype circuits in western Canada.

Before placing this system in effect our planning showed several very worthwhile advantages of centralized control:



Chart Room



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"trailer answer" system. This system permits request messages being received by space control offices to be replied to in approximately five seconds, thus allowing information to be immediately given to passengers while waiting at the counter or on the telephone at the office dealing with the passenger. Offices address reservation request messages to their local space control office only, who will immediately reply regarding space which is controlled at that office and who will obtain any additional Trans-Canada Air Lines space from other space control offices or interline space from our stations at connecting points. Itineraries for pas-

on our waiting lists according to the importance of their trip.

In 1942 increasing loads made it necessary to withhold the sale of passenger seats over certain portions of our routes to avoid overloading of flights and the resulting delays in schedule. Within a few months a much more comprehensive weight space control was introduced and placed under the jurisdiction of Space Control Offices. This system has permitted us to take advantage of the fluctuations in the fuel, mail and express loads and seats normally embargoed from sale may be released well in advance of flight departure when the load permits,

cording to the various functions performed so that we have a teletype equipment room, reservation chart room, filing room and telephone answering room. These rooms have been soundproofed almost to the floor level. This feature was also extended to reservation chart positions and telephone answering positions being soundproofed and has had a very beneficial effect not only on working conditions for our personnel but also has increased the efficiency. To provide rapid inter-office communication system from each teletype and telephone position to space control agents or between any positions in the offices where communications facilities are required, a magnaphone connection has been supplied. Each magnaphone position is supplied with a key panel microphone speaker and busy indicator light associated with each circuit.

Teletypists Contact Agent

Reservation messages received in the teletype room are immediately serviced by the teletypist, who contacts the control agent handling the flight by magnaphone, and transmits the appropriate reply to the message in a trailer answer form. This trailer reply is sent on teletype circuits immediately following the message concerned and no traffic is placed on circuits until after the five-second trailer reply is completed. Messages are routed from the teletype room on a seven-channel conveyor belt equipped with drop positions to any of 10 reservation chart positions for checking purposes and then are routed on the same conveyor belt to the filing room which also operates in the reverse direction. Another conveyor belt operates through the center of the 14 telephone answering positions to the file room. This three-channel belt operates in both directions so that completed reservation cards are filed immediately for any further reference required. Cards which are later required by telephone operators for further handling are requested from the file room by magnaphone and are routed to the requesting position on the conveyor in less than 10 seconds.

Filing Room Divided

The filing room at Central Control is divided into two sections. Reservation card concerning passengers who are boarding flights at that city are maintained in one section and teletype messages concerning passengers who have been allotted space are placed on waiting lists for other cities and are kept in another section. Filing is done by using the first letter of the passengers surname and the date of flight and cross reference slips when messages or cards contain reference to more than one date. Records are removed daily from the files and retained in filing cabinets using the same method of filing.

Our original expectations for this system have been fully satisfied and we expect to continue our centralized space control system in future, modifying it according to our needs when routes are expanded and larger equipment is used.

AIRPLANE MANUFACTURING AND SUPPLY CORP., North Hollywood, Cal., now has all of its 500,000 authorized shares of common stock outstanding following the sale of 126,934 shares to the Union Oil Company of California. Earl Herring, president, announces. The stock was sold at \$3.27 a share, and two of the company's principal stockholders sold a substantial portion of their holdings to Union at \$2.10 a share.



Teletype Room

sengers traveling over our entire routes regardless of the number of stop-overs can be completed for the original requesting office within a half hour.

The priority system established in Canada for the movement of passengers and cargo differs considerably to that which was later used in the United States. Priorities are granted only by two offices in Canada and these offices immediately advise Central Control at Toronto or Western Control at Edmonton of such priority authorizations, who in turn advise traffic offices and stations of priority passengers boarding at their city and also which passengers must be removed from flights for priority reasons. To do all possible to further the Canadian war effort, all regular passengers are placed in four classifications based on information which we obtain from passengers when the initial reservation is being made. These classifications are based on the passenger's relative importance to the war effort and are broken down into four groups, that is, those traveling on business directly affecting our war effort, those on regular business, members of the Armed Forces on furlough and pleasure travelers. This system has been invaluable when it is necessary to deplane passengers for priorities as those passengers who are the least essential to the war effort are first removed from the flight and also passengers are given preference

without affecting the operation of the flight. It also provides for the protection of exceptionally heavy loads by embargoing additional seats where necessary. Our object was, of course, to utilize the available space load on our aircraft to maximum advantage and this system has proved essential and valuable.

As previously mentioned space control offices assumed an important position in our Communications Department as all teletype circuits terminate in at least one of these offices. Our teletype circuits carry all company operations, reservations, and general administration messages and space control offices have been furnished with teletype equipment so that messages may be handled instantaneously.

The three space control offices in Canada have been constructed on a uniform plan and vary only according to size depending on the number of teletype circuits terminating in the office and the number of flights controlled. At Central Control, Toronto, a telephone answering service also is a part of this office for handling all passengers at Toronto and surrounding districts.

This service was incorporated as a part of the space control office to provide immediate service to passengers making reservations by telephone and to greatly reduce communications costs to offices at Toronto.

The offices are divided in sections ac-

Overall Revamping of Tariff Structure Urged in Canada

Industry Seeks Duty Preferences With Other Nations

(This is the second of a series of articles on tariff situations which American manufacturers may face in exporting aircraft and parts in the post-war period.)

A SUPPLEMENTAL memorandum to its earlier brief relating to the customs tariff and other direct taxation on purchases which affect the aircraft industry (American Aviation, July 15, 1944) has been filed with the Government by the Air Industries and Transport Association of Canada.

In it the Association recommends that the complete structure of present foreign trade treaties should be comprehensively reviewed and revamped to comply more closely with Canadian postwar needs, and that policies with that objective should be formulated as soon as possible so that Canada may incur no handicaps in the process of international treaty making and trade arrangements.

Specific attention is called to the fact that the Canadian tariff rate on completed aircraft from the United States is 20 per cent, and that aircraft parts are permitted entry into Canada at rates varying from free to 15 per cent; while as opposed to this, the American rate on Canadian aircraft and on complete parts is 30 per cent. The brief further points out that the traditional policy of the U. S. Government is to insist upon equality of treatment with other nations in foreign countries, and suggests that the Canadian Government, in the interests of Canadian industry and employment, should emphatically try to adhere to a similar policy in order to achieve a well balanced and enterprising international commerce.

Taking up the general aircraft tariff sit-

uation, the Association reports that there are now five different rates applying to aircraft not including engines. These range all the way from free importation under the British preferential tariff, benefits of which are extended to 77 British countries, to a 27½ per cent duty under the general tariff. Under the intermediate tariff the rate is 25 per cent, and under the Canada-U. S. Trade Agreement Act 20 per cent. Under the Canada-France Trade Agreement Act a rate is set up of the intermediate tariff less 10 per cent.

But while Canada extends the benefits of free importation to 77 British countries, only 20 of these countries extend to Canada a reciprocal privilege of free importation. Eleven British countries grant Canada a percentage of preference in tariff rates, while 46 give Canada no preference in tariff on aircraft. Included in these 46 are five of the most important in the Empire from the standpoint of export trade—Newfoundland, Irish Free State, Union of South Africa, Southern Rhodesia and British India.

While the general tariff rate on aircraft imported into Canada is 27½ per cent, the benefit of this rate as a protection to the Canadian aircraft industry is reduced to 20 per cent by virtue of the Canada-United States Trade Agreement Act. Under the most favored nations treatment clause of this act, the benefit of the 20 per cent special rate is automatically granted by Canada to all countries on the most favored nations treatment list. Prior to the war this included 41 countries, embracing virtually the entire world, and at present it comprises a total of 24 foreign countries. Yet of the countries enjoying most favored nation treatment, France is the only one which grants Canada any tariff preference on aircraft or parts.

In its original brief, the Association did not suggest any overall change in the Canadian Tariff protection afforded complete aircraft, not including engines, produced in Canada, but suggested a down-

ward revision of the rate to apply on aircraft of certain types, namely, aircraft, not including engines, of a type or capacity, of which the equivalent is not manufactured in Canada. In its supplementary memorandum, however, the industry urges that negotiations should be entered into by the Canadian Government with foreign countries which enjoy most favored nation treatment in tariff matters in Canada, and with others, with a view to obtaining tariff preferences on aircraft when exported to such countries. Special reference is made to the fact that Sweden and Mexico are understood to have tentatively expressed a desire for trade negotiations and that both must be considered an important potential market for the aircraft industry of Canada.

Under the existing trade treaties, Empire or foreign, the Association goes on to state, the main beneficiaries are the primary industries, and since the aircraft industry is of importance to the maintenance of national security as well as having commercial potentialities, it would seem to merit similar consideration.

Refers to U. S.-Greco Treaty

In its memorandum, the Association points to the treaty or arrangement existing between the U. S. and Greece as an example of the existence of tariff preference on aircraft not enjoyed by Canada. Under this agreement, American aircraft are subject to the minimum rate of five per cent ad valorem plus a surtax of 75 per cent of the duty, or a total duty of 8¼ per cent; while Canadian aircraft and parts pay a maximum tariff of 10 per cent, subject to a tenfold increase, plus a surtax of 75 per cent of the duty, or a total rate of 175 per cent.

Similarly under the tariff arrangement between the U. S. and France, the U. S. enjoys the minimum tariff on aircraft and complete parts thereof. On the other hand, by reason of the fact that Canada does not enjoy an unrestricted most favored nation treatment clause with France, the Canadian preference under the French aircraft tariff is confined to certain types of small aircraft engines and fabric covered wings only, with all other aircraft and aircraft parts being subject to the French maximum rates, four times greater than the minimum rates enjoyed by the United States.

The Association concedes that the exclusive tariff concessions granted to the U. S. by the Philippine Islands, Puerto Rico, Hawaii, Virgin Islands and Cuba are in the nature of Canada's own Empire preference and therefore perhaps without possibility of extension to Canadian trade.

In conclusion, the supplemental memorandum states that given an unhandicapped entry into the world's markets, the ingenuity, resourcefulness, determination and skill of the Canadian aircraft industry will make a large measure of successful competition possible; and recommends that the use of a similar device to the margin of preference on aircraft and finished parts imported into Canada guaranteed the United Kingdom under the United Kingdom Trade Agreement Act, if invoked in favor of Canadian export trade, would have a very beneficial effect and would prevent in many cases nullification of preferences for Canadian products by reason of most favored nation treatment afforded in foreign countries to countries competing with Canada.



New Helldiver—Perforated dive flaps to brake speed without excessive buffeting of the tail aid the performance of the new model Curtiss Helldiver, the SB2C-4, now in action in the Pacific, according to the Curtiss-Wright Corp. The new version carries a heavier bomb load than its predecessors and has eight rockets in underwing racks.

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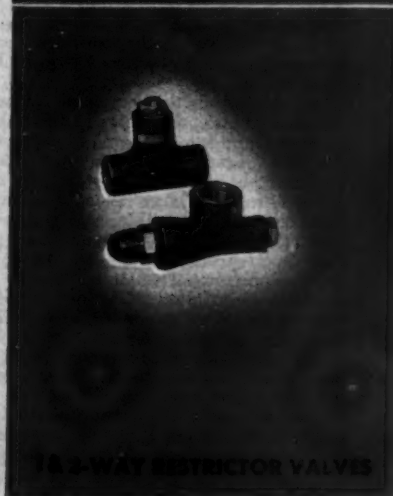
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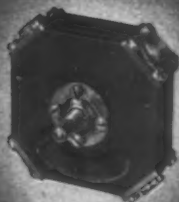
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Responsibility on Cutbacks Lodged With WPB Group

**John D. Small Named
Head of Production
Readjustment Unit**

RESPONSIBILITY for the planning and administration of cutbacks, curtailments and terminations in war production will be lodged with the Production Readjustment Committee, composed of representatives of the armed services and other government claimant agencies, according to the plan prepared by WPB Chairman J. A. Krug at the request of James F. Byrnes, Director of War Mobilization and Reconversion. The Production Readjustment Committee, headed by John D. Small, will operate under the direction of WPB's Production Executive Committee.

The planning procedure is divided into two stages: current cutbacks and advanced planning for Period I reductions (Period I is the new designation for what was previously called V-E day and, earlier, V-day.) Both the "current production adjustments" procedure and the advanced planning for Period I will be directed by Small.

Current cutbacks which involve more than \$500,000 in any month are submitted by the procurement agency with a recommendation for distribution of the cutback among the prime contractors. If any member of the committee objects within 24 hours to the manner of distribution, a ruling will be made by the director on the same day. Cutbacks of more than \$100,000 but less than \$500,000 on any prime contract in one month must be received by the committee at least 48 hours before the contractor is notified.

When any cutback will involve a "substantial release of labor" the chairman of the local WPB termination committee will meet with the State War Manpower Commission director, representatives of the procurement agency and the WPB labor representative preliminary to a meeting with the company management and representatives of the workers. The procurement agency must notify the contractor of the cutback before he hears it "from any other source." Simultaneously, WPB's labor vice chairman will notify the national unions.

Will Adjust Planning

"The procurement agencies will so adjust their procurement planning, procurement controls and inventory controls as to make it possible to notify plants of work stoppages at least seven days in advance of the date of work stoppages," the report states.

An order of priority has been set-up for released facilities and manpower to serve as "a set of objectives." 1. Transfer workers to other war work within the plant. 2. Put "must program" work in the facility. 3. Put other war work in the facility, except in cases where community facilities are overloaded and the war work will not be transferred from another plant in the community. Stand-by work may be placed if the plant has other war production which will start within 60-90

days. 4. Released workers to be directed to other "must" work. 5. Released workers to be directed to other war work. 6. Non-military production in order of urgency.

The Production Urgency Committee will direct the use of facilities which have been released by contract run-outs.

The procurement agencies are required to submit their plans for the initial Period I cutbacks for ruling by the Period I Adjustments Group on plants to be curtailed. Rulings may be appealed to the Production Readjustment Committee and the Production Executive Committee.

At the beginning of Period I current cutback procedures will be waived until the first large-scale adjustments have been made. But if the plans of the armed services do not call for large cutbacks when Germany falls, these procedures will remain in force.

Discussions Planned

Before the Period I adjustments group determines policies for major industries, the industry advisory committees will meet with the divisions of WPB to discuss "all aspects of the Period I problems of the industry."

The procurement agency will inform contractors of the Period I cutbacks and contractors will inform labor. WPB field officers will meet with contractors to prepare to handle the problems involved.

Facilities which are released by Period I cutbacks are to be used for military work if it is available. "General consultation and planning with industry by the industry divisions (of WPB) will continue for the purpose of making all necessary plans for transition to civilian production," the report concludes.

Caterpillar Flying Box Car—

The Arado Ar232B, as sketched in "Flight", presents two novel innovations—a 22-wheel undercarriage in addition to a rather conventional tricycle landing gear, and a single boom supported empennage. The multiple undercarriage is fixed and is for use on rough ground. Only the main wheels of the conventional landing gear retract. The new German transport has a span of 105 ft., overall length of 77 ft., and is powered by four Bremo-Fafnir air-cooled radial engines delivering 985 hp each at take-off.

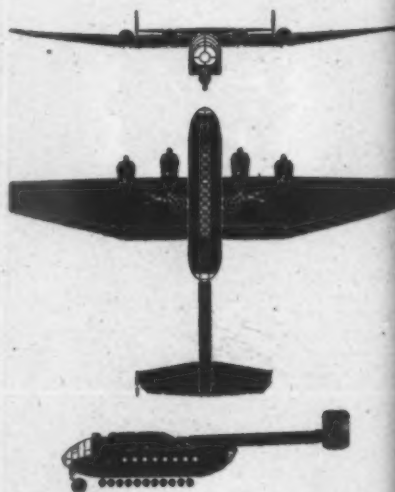


Ten U. S. Lines Eligible As Active Members in World Transport Body

Ten United States airlines have been invited to join the proposed International Air Transport Association as active members at the organization meeting to be held in Havana April 16. Fourteen other airlines, none of which now operate into a foreign country, have been asked to join as associate members.

Those invited to join as active members are: American, American Export, Braniff, Colonial, Northeast, Northwest, Pan American, Panagra, United and Western. All of these regularly operate to some foreign country. Those considered eligible for associate memberships include: All American Aviation, Catalina Air Transport, C & S, Continental, Delta, Eastern, Hawaiian, Inland, Mid-Continent, National, PCA, TWA, the U. S. Flag airlines in Alaska and Caribbean Atlantic.

The Air Transport Association of America has authorized Col. Edgar S. Gorrell, president, to attend as its representative to advocate the formation of the new international association. Airlines eligible for full membership will meet on the opening day of the convention while representatives of those eligible for associate membership will participate in the meeting beginning April 18.



Commando Landing...



ON LIGHTER, STRONGER TIRES

UNITED STATES RUBBER COMPANY



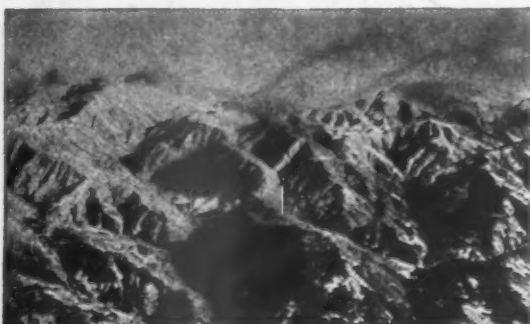


7 TON PAYLOAD FOR THE COMMANDO

The regular day's work for the Curtiss Commando, this giant load of supplies, will be flown from India over the hump to China by the Air Transport Command. Of the "flying freight car's" 48,000 pounds gross weight, tires consume only a small part, but they must be able to carry the load and to set it down safely on air strips of every description.

Working for the Troop Carrier Command and the Navy and Marine Corps, too, Commandos are doing duty around the globe. They are hanging up new records of fast, dependable delivery of air cargo of every type from white mice to airplane engines. The invaluable lessons learned in transport of materiel of war have led to countless improvements which make the

Commando thoroughly serviceable . . . tested and proved in war for tomorrow's peace.



NO LANDINGS HERE! Hundreds of miles of terrain like this is the regular diet of the Commando pilots who fly the route from India over the hump of the Himalayas to Kunming. Commando dependability counts double over territory like this.

1230 SIXTH AVENUE

UNITED STATES



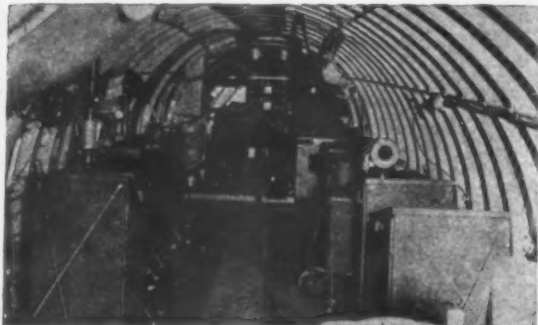
THEY CALL THEM FLYING FREIGHT CARS ... AND HERE IS WHAT THEY DO ...



SPEED SPECIAL MISSIONS . . . Twenty-two men and all their equipment packed into a Curtiss Commando C-46 fly through high altitudes over the Himalayas from India to South China.



PICK UP WOUNDED . . . Specially equipped Commandos act as hospital ships, pick up the wounded, 20 men to a plane, and evacuate them to hospitals. These planes operate regular, daily service.



FIRST AID FOR BOMBERS . . . This Curtiss Commando is a fully equipped flying machine shop ready to go to the rescue of a super-bomber forced down by mechanical trouble or battle damage.



FLY TRUCKS OVER THE HUMP . . . For trucks to carry airplanes does not seem so unusual, but here is an airplane that carries fully equipped trucks over the mountains. This time it's a weapons carrier.



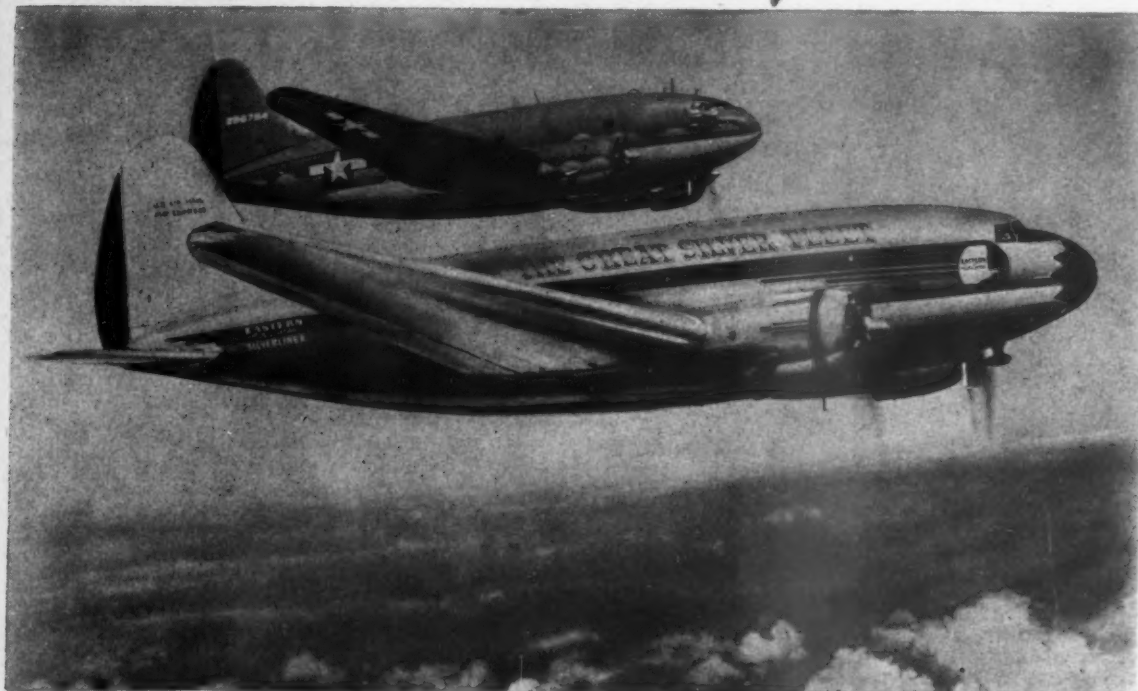
RUSH THE RATIONS . . . Nothing is more important than carrying the food to Allied troops at distant outposts. This shipment of field rations being delivered by Commando is a heavy load for tires.



DELIVER SPARE ENGINES . . . Just another of the many jobs done by the "workhorse" of the Air Transport Command's global routes is delivering spare engines and engine parts to bombers in distress.

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Proved in War-Ready in Peace



Designed as a peacetime transport, the Curtiss Commando became a military aircraft flying millions of miles under the severest conditions. Today, Curtiss introduces the peacetime version of this tested and proved passenger cargo plane.

As a part of its \$25,000,000 domestic and international expansion program, Eastern Air Lines is adding a fleet of these new peacetime Curtiss Commando Silverliners to The Great Silver Fleet. This program will multiply Eastern's mileage by five times in a three year period and by approximately ten times in five years.

U.S. Royal Airplane Tires are serving on Curtiss Commandos over the hump and around the globe. Like the Commando, they are proved in war and ready to carry the air cargoes of peace.

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Col. Edgar Gorrell Dies After Illness Of Only One Week

Col. Edgar S. Gorrell, 54, president of the Air Transport Association since Jan. 14, 1936, shortly after it was formed, died March 5 in Georgetown Hospital after an illness of one week. He collapsed of a heart ailment in his suite at the Carlton Hotel February 26.

Colonel Gorrell's career with the ATA was aimed at putting the airlines on a



Col. Gorrell

paying basis and projecting civil aviation into a great place in national defense. When he assumed presidency of the ATA the position required tact as well as ability. The airlines still were nervous over the recent cancellation of air mail contracts and there were many

problems in the industry. He helped promote the Civil Aeronautics Act which in 1938 established the present system of regulation of civil aviation.

Since 1935, Colonel Gorrell had been president and chairman of the board of Edgar S. Gorrell Investment Co.

Before becoming associated with the ATA, Colonel Gorrell won prominence in Army aviation and in the auto industry. Born in Baltimore, Feb. 3, 1891, he was graduated from the United States Military Academy in 1912. While at West Point he watched Glenn Curtiss flying along the Hudson in his "motorized laundry wagon." He became Chief of Staff of the Air Service, AEF, during World War I.

The Colonel left the Army in March, 1920, and joined the Nordyke and Marmon Co. He served this company in San

Josh Lee Says Air Transportation Can Remove Two Causes of War

AIR TRANSPORTATION can help prevent war by alleviating two economic pressures which contribute to its cause—living space and living conditions, Josh Lee, member of the Civil Aeronautics Board, declared in an address last fortnight.

Speaking in New York, Lee asserted that the plane has suddenly made the uninhabited land areas accessible for development and settlement and that it has become an important cog in transportation—"the very life of commerce."

"All of the markets of the entire world will be available to every country through aviation . . . This better understanding will create more travel. Thus aviation is the stimulant that will improve economic conditions in every country throughout the world. And as economic conditions improve, the second pressure which causes war will be relieved."

Lee said that the only ceiling on the size of our postwar foreign market "is the amount of dollars we can transfer to potential customers." The best way to accomplish this, he said, "is by means of American tourists spending dollars in foreign countries."

Lee discounted projections of postwar

Francisco, Boston and Indianapolis. In 1925 he became vice president and director of the Stutz Motor Car Co. in Indianapolis.

He is survived by his widow, the former Mary Weidman, whom he married Feb. 22 of this year, and a son by a former marriage, Edgar Staley Gorrell, Jr.

Funeral services were held March 8 at the Ft. Meyer Military Chapel, Arlington, Va. It was his wish that his body be cremated and the ashes strewn over West Point by a member of the Army Air Forces.

air travel based on a "certain percentage of the passengers who before the war crossed the Atlantic by steamer, first class and a smaller percent of those who traveled by steerage . . . such calculations fail to take into consideration the convenience of the newer method of transportation."

He said that following the war vacation and tourist travel will be "terrific," and predicted that in the field of air cargo "there are many economies which are not possible in surfacing shipping." As air traffic increases, he added, the cost will come down.

In view of this potential, Lee declared, "our aviation policy should promote mass air travel . . . We dare not set our stakes merely upon the basis of present aeronautical achievement."

"We should extend air routes, not only to every area which is important today, but to every area which may be important tomorrow, either because of its population or because of its natural resources. We dare not plan on just such routes as we can justify economically on the basis of present figures. We should reason that wherever there are resources there will be traffic if we provide the means of transportation."

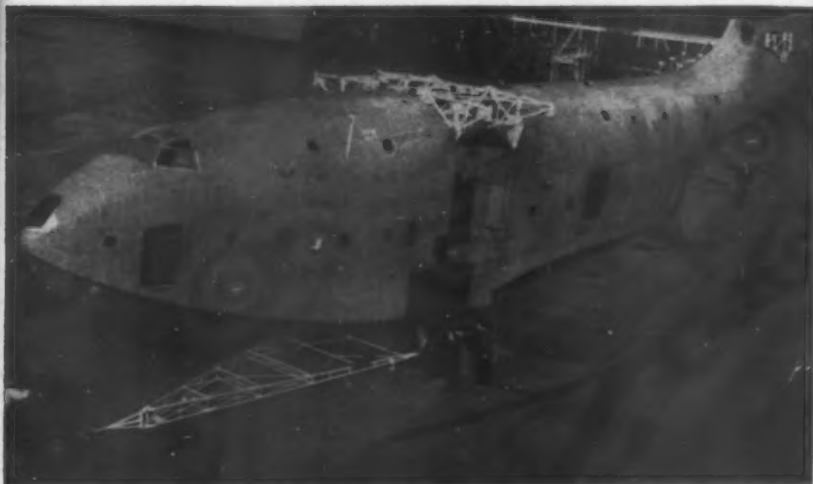
XB-19A Being Altered To Big Cargo Carrier

The Douglas XB-19A, largest plane now flying in the world, which was equipped recently with Allison V-3420 liquid-cooled, in-line engines, is now being stripped of experimental equipment at the Fairfield base of the Air Technical Service Command near Dayton, preparatory to revamping it into a giant cargo carrier.

Despite the fact that the warplane has never dropped a bomb on enemy territory or fired a gun in combat, it is said to have contributed more to the war effort than any other single modern plane. Experience gained with the B-19 and the XB-19A (the designation was changed when the Allison engines were substituted for its original air-cooled Wright radials) has considerably accelerated the program for long-range heavy bombardment aircraft, according to Brig. Gen. F. O. Carroll, chief of ATSC's Engineering Division.

He added "It is typical of the contributions of this plane for it to continue to serve by speeding supplies wherever and whenever they are needed."

As a cargo carrier, the plane will have tie-down racks, a new reinforced floor, a large cargo door and a loading ramp. Engineers estimate 45,000 pounds payload can be readily handled, varying of course with the length of the flight. In its runs as a flying test stand with the new in-line engines, the XB-19A achieved speeds in excess of 250 miles per hour, and chalked up satisfactory performance at altitudes up to 25,000 feet.



John Bunyan's Canoe Moves—So large that it recalls America's mythical giant, the Mars JRM hull moves out of the hangar onto the apron. More than half of the 32 ports and the 17 hatches are in view. The 10-ton monster's center door is 8 by 7½ ft. and through it tons of cargo will be loaded and unloaded. This is the first of the 29 Mars flying boats being built for the Navy by The Glenn L. Martin Co. They are half-sisters of the Mars now plying the Pacific route.



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Specifically designed for the class of aircraft most generally in service with the Bush Flyer, the AVTRI-2 equipment, illustrated here, represents a complete and coordinated aircraft radio system. From microphone to antenna it is *all* RCA—each unit the finest in Aviation Radio Equipment.

This RCA Aircraft Radio System is also ideally suited for Feeder Line Service, Air Taxi Service, and non-scheduled operations where dependable radio equipment is required.

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Model AVR-7HLN Aircraft Receiver: Three-Band Operation—200 to 415 KC for Navigation and Weather Reports, 500 to 1400 KC for loop direction-finding and homing and 2300 to 6700 KC for communication. Remote Control of all receivers functions from a small Pilot's Control Panel. Optional crystal control on 2300 to 6700 KC band.

Model AVT-23 Aircraft Transmitter: Frequency Range 3000 to 13,000 KC. Four-channel, four-frequency operation, crystal control. Remote push-button frequency and automatic band change. 25-watt output, 100% modulation. Single unit construction with integral power supply. Internal antenna loading.

Model AVA-62-A Loop Antenna: Light-weight plastic and aluminum-alloy construction. Streamlined for low aerodynamic drag. Remote control of loop rotation.

Reception on frequencies of 200 to 1500 KC for direction-finding, navigational data and homing. Loop shielded for operation under precipitation-static conditions.

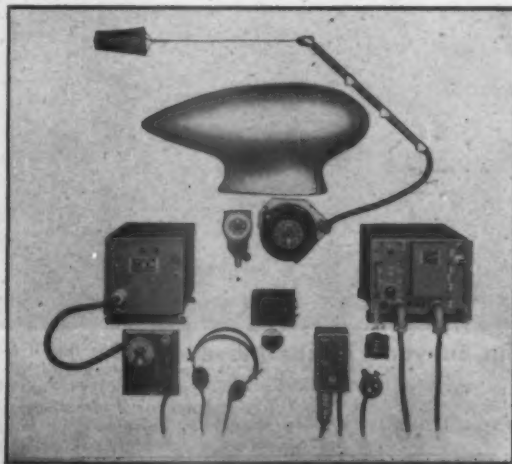
Model AVA-41A Antenna: Free-wheeling hand reel with positive acting brake. Automatic turns counter. Unique design permits operation when plane is on ground or water.

Model AVA-38 Simultaneous Radio Range Filter: Small light-weight filter for separation of voice and range signals. Function switch included. Meets airline requirements.

Model AVA-31A Aircraft Microphone: All-position operation. Anti-noise characteristic for intelligible speech. Black moulded plastic housing with easily operated press to talk-switch.

AVA-35 Headset: Light-weight and compact construction. Designed to airline standards. High quality reproduction.

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House May Delay Aviation Bills Until April 1 or Later

Jurisdictional Fight In Senate Aids Plea On New Committee

AVIATION LEGISLATION in both branches of Congress had not yet been assigned a place on the hearing calendar during the fore part of the month.

Sen. Josiah W. Bailey (D., N. C.), chairman of the Senate Commerce Committee, indicated that a hearing date on domestic aviation bills before the Senate might be set shortly.

In the House, it appeared that aviation legislation would have to give way for what the House leadership considered was more urgent legislation. The last estimates were that aviation legislation might not be reached by the Interstate and Foreign Commerce Committee until April 1 or even later.

On the Senate side, the fight over committee jurisdiction of aviation bills promised to get new support for the McCarran bill (S. 19) which would create a new

standing committee on aviation. The fight developed after Sen. Olin D. Johnston (D., S. C.) had introduced a companion of the Lea Aviation bill (H.R. 674) in the Senate and succeeded in having it referred to the Interstate Commerce Committee of which he is a member. A few days later, Senator Bailey offered a resolution in the Senate to discharge the Interstate Commerce Committee of further consideration of this bill and that it be referred to the Commerce Committee.

Will Make Strong Fight

The Senate Commerce Committee, it was apparent, would make a strong fight to retain jurisdiction over aviation matters. Senator Bailey was prepared to give the Senate a complete history of aviation legislation in the upper chamber, which included information that aviation bills as early as 1910 had come out of the Commerce Committee. The Air Commerce Act of 1926 was sponsored by the Commerce Committee and he planned to tell the Senate that the McCarran bill, which later became the Civil Aeronautics Act of 1938, had in reality been taken away from Interstate Commerce Committee and referred to the Commerce Committee. This was accomplished when Senator Pat Mc-

Carran (D., Nev.) re-introduced his bill and asked the President of the Senate to refer it to Commerce. In those times, the presiding officer followed the wishes of the author of the bill as to reference.

Role of Germaneness

Today the presiding officer follows the rule of germaneness. Vice President Harry S. Truman referred the Johnson bill (S. 541) to the Interstate Commerce Committee of which he was a former member. This was the first aviation bill which had come under his jurisdiction since he became the presiding officer of the Senate. Some Capitol Hill observers pointed out that Truman was in the middle of the jurisdictional fight in 1937 when the McCarran bill was virtually taken from Interstate Commerce and that to assuage his feelings, he was made a member of the Senate-House Conference Committee to adjust the minor differences in the bill which was to become the CAB Act of 1938 although he was not a member of the Commerce Committee which had held the hearings and steered the bill through the Senate. This was considered unusual from a procedural viewpoint.

New Bill in House

The Chosen Instrument bill appeared in the House March 2. It was introduced by Rep. Cecil R. King (D., Cal.) as H. R. 2446. It is identical to the McCarran bill (S. 326) which would provide for the creation of All American Flag Line, Inc., for postwar operation in the international field of aviation.



Plug Disassembler—Maintenance men at the TWA Kansas City shops rigged up this wheel to disassemble sparkplugs for servicing. The spark plug is inserted in the center of the wheel, and a stationary clamp in the bottom of the shaft holds the plug shell while a spring loaded jaw in the upper part of the shaft grips the body. Spinning the wheel disassembles the plug with the shell dropping out the bottom of the shaft and the body coming out at the top. Carol Sherrick, crew chief of radio and electrical department, is demonstrating the new device.

Six-Million Dollar Increase Sought In Domestic Air Mail Fund for 1946

THE APPROPRIATIONS Committee of the Senate is due to begin hearings on the Treasury-Post Office appropriation bill of 1946. The bill, which has passed the House, contains \$43,315,000 for domestic air mail service.

This is the exact amount which the Post Office department requested for 1946 air mail expenditures. The Budget Bureau approved the amount, as did also the House Appropriations Committee and the House of Representatives. The amount represents an increase of \$5,937,200 over the fiscal year, 1945.

The bill also requests \$5,836,000 for 1946 for foreign air mail transportation, a decrease of \$427,251 over the total obligations of \$6,263,251 for fiscal 1945. Testimony in the hearings indicated that the 1945 expenditure includes a deficiency of \$2,478,251 which was caused by the Navy canceling its contract with U. S. carriers for the carriage of personnel, express and mail between U. S. and Alaska July 31,

1941, and across the Atlantic as of Dec. 31, 1944. Under the Navy contracts, the mail was carried free as far as the Post Office department was concerned. Since these contracts were cancelled, the Post Office department has had to make new contracts with the airline companies.

Smith W. Purdum, second assistant postmaster general, testified that the deficiency was divided \$1,205,127 between the New York-Lisbon line and \$1,044,569 for the Seattle to Fairbanks route.

The following tables give data on foreign and domestic air mail operations for the last several years:

FOREIGN AIR MAIL

	Receipts	Expenditures
1939	\$ 4,403,160	\$ 9,327,445
1940	7,272,130	12,431,965
1941	12,029,010	15,777,750
1942	16,013,294	14,240,808
1943	15,941,185	6,437,959
1944	17,746,021 (estimated)	.....

DOMESTIC AIR MAIL

	Pound Miles	Payments to Carriers	Postal Revenue ¹
1939	15,818,617,372	\$17,020,169	\$ 16,326,356
1940	18,671,367,440	19,425,732	19,122,906
1941	22,294,962,738	30,687,220	23,920,465
1942	31,404,237,960	23,473,170	33,417,367
1943	56,462,340,380	23,306,477	62,818,568
1944 ² (Estimated)	85,000,000,000	28,401,373	103,000,000 ³

1. Cost ascertainment.

2. 12 months ending March 31, 1944.

3. Includes \$25,690,000 soldier mail overseas.

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Aeroprops will "okay" this extra cargo

*War-Proved General Motors Propellers
Will Add Extra Payload Capacity*

PLANES that travel the commercial airlines of tomorrow will carry heavier payloads—more passengers and more shipping than ever before. And they will do it faster and cheaper.

Under the pressure of battle needs the development of aviation and aircraft equipment has been enormously advanced by

the concentrated efforts of America's genius in research, engineering and production.

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blades—are developments perfected for battle, that will offer great economy and efficiency to post-war air transportation.



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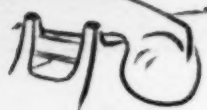
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37 Precision Operations? —Yes, Sir!—it's a Job for Aeronautical Products, Inc.



THERE'S A BIG advantage in having intricate parts produced by a single organization under single, controlled responsibility. No buck-passing, no costly delays. Long before Pearl Harbor we built a reputation on volume production of industrial and aircraft engine parts, large or small, hardened and ground, micro-finished.

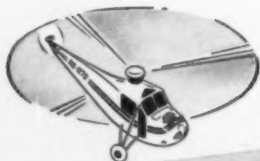
From automatic screw machines, through grinding, thread grinding and

milling, hypro-lapping, heat treating, nitriding, plating and magnafluxing, we give you the COMPLETE job!—and we work to tolerances as low as .0001, at top-speed production.

While we're now geared to total war output, we may have an open capacity on your parts problem . . . so why not write our Executive Sales Office for an impressive booklet on our complete plant facilities.

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Rail Group's Bill Gets Cool Reception in Many States

Some Legislatures Have Passed NASAO Model Measures

FIFTEEN of the 44 state legislatures which are meeting this year now have before them the National Association of Railway Utility Commission aviation bills which provide for the economic regulation of air commerce. These bills are generally opposed by the aviation interests of the country because of the threat of railroad domination through the regulatory powers which would be conferred.

In one state, the issue already had been squarely met and the railroad group defeated. This is in Georgia where the bill was defeated but sent back to committee for study as a face-saving gesture.

Based on available information in Washington, none of the NARUC bills have been passed, none has been acted upon favorably by either the upper or lower houses nor has any of them received a favorable report in committee.

Massachusetts held a hearing on its NARUC bill at which time state aviation interests made a strong argument against it. While no report has been filed, it is understood that the Legislature will appoint an ad-interim committee to give the measure further study. This was interpreted in state aviation circles as a setback for the proponents of this type of legislation.

North Dakota indefinitely postponed consideration of its NARUC bill—S. 114. In Ohio, the bill (S. 10) still is in committee. It provides for the establishment of the Ohio Air Commerce Commission to administer and enforce the provisions of the act.

2 Bills in West Virginia

The Vermont bill (H. 189) would place the administration of aviation under the Vermont Public Service Commission. Two bills, dealing with economic regulation of air transportation, have been introduced in the West Virginia Legislature. They are S. 150 and S. 192.

Hearings had been held on the NARUC bills (H. 169, H. 373 and S. 130) which had been introduced in the Texas Legislature. It is understood that a subcommittee of the Aeronautics Committee has been assigned to give the measures further study. New Mexico's H. 201 is considered a NARUC bill except for minor modifications. Washington's legislature has before it S. 349 which is said to be a NARUC bill.

In Connecticut, the NARUC bill is H. 637. It would place aviation under the Public Utilities Commission. Economic regulation of both common and contract carriers is provided. S. 369, before the Maine Legislature, is a NARUC bill which would place the control of aviation under the Public Utilities Commission. A hearing on this bill is in the offing.

In Arkansas, S. 324 was referred to the Public Service Committee while in Maryland, a NARUC bill appeared in the House as H. 495.

An interim committee in Alabama on aeronautics is now engaged in studying this type of legislation. The Legislature will meet May 1.

Meanwhile, many legislatures have passed some of the model bills sponsored by the National Association of State Aviation Officials. These bills set up state aeronautics commissions, provide for airport zoning legislation, airport construction and in some cases severance tax laws relating to the sale of aviation gasoline.

The New York Legislature Feb. 21 passed the Ives bill which gives the State Department of Commerce jurisdiction over the administration of federal funds granted to municipalities for the development of airports and aviation facilities. Some opposition to this bill came from New York City which held that it might jeopardize the completion of Idlewild Airport and other plans for making New York City the world's leading airport.

Wyoming passed a bill providing for the establishment of the Wyoming Aeronautics Commission and placed maintenance of airports under the direct supervision of the State Highway Department. In Arkansas, S. 25 which creates a state aeronautics commission and makes the law uniform with the NASAO model

Illinois Senate Passes Airport Authority Bill

The Senate of the Illinois Assembly has passed 42 to 0 and sent to the House the Municipal Airport Authority bill. This measure would replace the former Airport Act held invalid by the State Supreme Court last year.

It excludes the city of Chicago from its provisions, but takes in the country towns of Cook County and permits the creation of airport authorities in any contiguous territory having a population of not less than 5000 nor more than 500,000.

House passage of the bill will be pushed in an effort to get the bill enacted into law so that its constitutionality may be tested in a friendly proceeding either at the March or May term of the Supreme Court.

bill's provisions for development and regulation was withdrawn from the Military and Aeronautics Committee.

The State Affairs Committee of Indiana amended H. 211, a bill which created a state aviation department, with a five-member board. The bill provides for an appropriation of \$40,000 from the general fund. This bill is a modification of the NASAO model.

S. 184 creating the Iowa Aeronautics Commission was withdrawn and S. 349 was substituted. The changes are represented largely by aviation gasoline tax provisions. Hearing has been held on

Illinois Aeronautics Commission Withdraws as Member of NASAO

THE ILLINOIS Aeronautics Commission has withdrawn from membership in the National Association of State Aviation Officials, marking the first withdrawal from the NASAO in its history. The Illinois Commission has switched its support to the Council of State Governments.

Ben Regan, chairman of the Illinois Commission, sent the following letter to Maj. Sheldon B. Steers, president of the NASAO:

"The primary objective of the National Association of State Aviation Officials over the past many months has been the establishment of uniformity among the various state legislative codes throughout the country. Such uniformity, we realize, is vitally important in permitting aviation unhampered progress and greatest potential expansion.

"In recommending a uniform code to the state legislatures, the National Association of State Aviation Officials rendered a real and outstanding service to all phases of aviation. If the basic principles, as proposed in this code, are enacted by the states, we may be certain that the various statutory pitfalls which hampered other forms of transportation, will be, for the main part, substantially avoided.

"At present, however, it now appears that our main job as state aviation officials, is to concentrate our activities within our own states, in helping to perfect a state airport plan, and in developing public sentiment by means of education, to the airport needs and requirements of an air-minded public. To that end the state of Illinois is co-operating with all public bodies and civic groups within the state, and with federal agencies in Washington, toward

the goal of a national airport system brought about by federal and state co-operation.

"Because we feel that our problems in Illinois are peculiar to Illinois, it is our belief that we can best serve the citizens of the state by presenting our problems as Illinois problems, in the national legislature. In such a presentation we would act as representatives of the state of Illinois. As far as co-operation among the states is concerned, we believe that considerably more emphasis should be placed on the role of the Council of State Governments, which is the oldest and most respected state group in the country, and which has, as its members, the governors of the 48 states.

"Under the leadership of Gov. Dwight H. Green, World War I pilot, we, in Illinois, are proud of the accomplishment of the state to date. We will continue to follow him in his plans and programs, and through him will continue to cooperate with our sister states. Because the efforts of the Illinois Aeronautics Commission must necessarily be closely linked to his constructive leadership, we feel that any other state association, outside of the Council of State Governments, would represent an overlapping authority. For that reason we wish to withdraw from membership in the National Association of State Aviation Officials at this time.

"We hope that you will assure all state aviation officials that we will continue to cooperate in those programs which are designed for the sound development and expansion of aviation and which must necessarily be handled through State channels."

Withdrawal of the Illinois Commission had been under consideration since the NASAO meeting held in Oklahoma City last fall.

H. 789 by a committee of the Maine Legislature. This bill would create an Aeronautics commission.

A hearing was set for March 14 by the State Administration Committee of the Massachusetts Legislature on H. 1032 a bill to create a state post and airfield commission. The Montana House has passed H. 84 a state aeronautics regulatory act. This bill is similar to the NASAO model.

A third reading of LB 282, a bill creating the Nebraska Aeronautics Commission and providing for the development of aeronautics, has been accomplished. This bill imposed a five cent per gallon tax on aviation fuels and provision was made for the revenue to be placed in the aircraft fuel tax fund.

Action has been completed by the North Carolina Legislature on S. 80 which creates a state aeronautics commission. In North Dakota, S. 173 was substituted for S. 54. The new bill removes some of the regulatory provisions and cuts the appropriation from \$40,000 to \$25,000.

In Oklahoma, the Legislature was awaiting further comment from the civil Aeronautics Administration on its bill H. 126 which would transfer from the State Highway Commission to a newly created Aviation Commission such duties as the highway agency has handled in regard to aviation.

\$3,725,000 for Airport Construction Sought In Pennsylvania Assembly

A bill appropriating \$3,725,000 for surveys, plans and construction of airports has been introduced in the Pennsylvania Assembly. Under the terms of the bill, the state funds would be used on a matching basis with municipalities.

According to William L. Anderson, executive director of the Pennsylvania Aeronautics Commission, this proposed legislation is designed to implement the first two years of a 10-year state airport plan. Developed by the Aeronautics Commission, this airport plan is co-ordinated with the National Airport Plan, differing only in some details. These funds, when matched with municipal funds, would provide seven million dollars for airport construction in the next two years, beginning June 1. If the federal aid airport program is passed, then state and municipal funds would be pooled to match federal funds on a 50-50 basis which would double the money available for airport development in Pennsylvania, making possible the expenditure of a maximum of 14 million dollars in two years.

The Commission's airport program provides for 148 new airports, and improvements and extensions to 95 existing airports. The estimated cost of this program over a 10-year period is \$34,500,000.

Rep. William McMillen, chairman of the Committee on Aeronautics in the House, stated the program was based on local initiative and the economical development of airports by stages as the requirements of the municipality and its financial ability dictate over the 10-year period.

A second bill introduced by Representative McMillen would earmark the taxes collected on aviation fuel to the Pennsylvania Aeronautics Commission for the development of aeronautics in the Commonwealth.

Michigan Assembly Considers 3 Bills Relating to Flying

Three bills relating to aviation have been introduced in the Michigan State legislature. Under the provisions of H. 198, a department of aeronautics, consisting of a director, the highway commissioner, the commissioner of the State Police, the director of the conservation department and five members to be appointed by the governor, would be created.

The other two bills, having to do with financing aviation facilities, were introduced in the Senate and are designated as S. 214 and S. 215.

One of these bills (S. 214) would appropriate \$250,000 for the use of the State Administrative Board to be released from time to time to the director of aeronautics for planning, survey and engineering services and development of airports and landing fields within the state.

The second bill (S. 215) would establish the "Michigan Aviation Matching Fund." A total of \$5,000,000 would be appropriated between now and June 30, 1947 to enable the State to match Federal funds for airport development up until July 1, 1952. The allocation would be on the following basis: 10% to the 83 counties, on the basis of 1/83 of the total for each county, 20% on the basis of the ratio of the county's area to the area of the entire state and 70% on the basis of the ratio of the county's population to the population of the entire state.

KNILM Heads Returning To East Indies to Begin Resumption of Services

W. C. J. Versteegh, managing director of KNILM, Royal Netherlands Indies Airways, and his staff will leave shortly for Australia to rejoin the members of



de Jong

Versteegh

the staff on active service overseas to prepare for resumption of the Dutch services as soon as liberation of further of the Netherlands East Indies makes this possible.

Marten E. A. L. de Jong has been appointed general manager for the company for the United States with headquarters at 521 Fifth Ave., New York, which also is the headquarters in this country for KLM, the Dutch company operating before the war out of Amsterdam and now operating in the West Indies. He has been with the company 17 years as gen-

eral traffic manager. With the new move the joint representation of KNILM and KLM in the U. S. ceases. KNILM again will have its main offices at Batavia, N.E.I., when that area is liberated. Prior it operated extensively in the Southwest Pacific and linked with KLM operating from Amsterdam.

KNILM's plans to first put into operation its prewar network which consisted of the domestic services in the Netherlands Indies and international services to Singapore in the Straits Settlements, Saigon in Indo-China and Sydney in Australia.

It also plans a connection with China, Japan and eventually Vladivostok, a connection with Manila and an extension of its Java-Australia service to New Zealand. Further on the program is the line, Netherlands Indies-U.S.A. which is planned at this time to run via Hollandia-Marshall or Gilbert Island-Honolulu.

Survey Shows Desire For New Medical Rule

The United Pilots & Mechanics Association has completed its nation-wide survey of the Civil Aeronautics Administration medical examiner system as it relates to private flying, and disclosed that 64 per cent of those answering its questionnaire consider present physical requirements are too rigid and should be relaxed. More than 67 per cent stated that any reputable licensed physician should be permitted to give the examination. Replies from pilot physicians or doctors otherwise connected with private flying showed that 60 per cent favored both relaxation of present standards and permitting any reputable physician to give the examination. The survey further showed that only 48 per cent of the airports were served by a local designated CAA medical examiner, and that the average private pilot applicant had to travel 50 miles for his examination.

Al Near, Back from AAF, Takes Louisville Post

Lt. Col. Al H. Near has returned to civilian life after serving in the Army Air Forces since 1942. He has been reappointed director of airports for the City of Louisville, Ky., and as a member of the Kentucky Aeronautics Commission, and has been re-elected a member of the board of directors of the National Aeronautic Association.

Col. Near went overseas with the Eighth Air Support Command in England and France, and was cited by General Eisenhower for his part in the movement of Supreme Headquarters and Air Force Units to North Africa for the African campaign. He also was recommended by General Weyland, commanding officer of the 19th Tactical Air Command, for the Legion of Merit. He was with the 19th Tactical Air Command which was furnishing close air support of General Patton's army in France when he was incapacitated and removed from France to England by air and by ship to the United States.

Shortest

COAST-TO-COAST AIRWAY!



More than 84,000,000 people will enjoy faster coast-to-coast air travel when Western Air Lines inaugurates service over its new, direct "cut-off" route between Los Angeles and Denver.

First of the transcontinental airways to follow the Great Circle route, the new Los Angeles-Denver "cut-off" saves 239 miles. Between Los Angeles and Denver it crosses one

of the most colorful and scenic parts of the world. The route will bring closer all parts of our national life.

Foreseen by Western in 1936 when it was first to survey the "cut-off" and ask the government to establish an airway, the Denver-Los Angeles route marks an important milestone in Western Air's 19 years of pioneering achievements.

WESTERN HIGHLIGHTS

The Denver-Los Angeles "cut-off," now being rushed to early completion, will have the most modern high-frequency radio range stations and the last word in navigational aids.

The war has taught us global flying and the value of Great Circle routes. The Denver-Los Angeles airway is the first transcontinental route that follows a Great Circle course.

In postwar, this route will bring within one day's time the continent's principal parks and playgrounds.

Many modern conveniences in air travel were pioneered by Western Air... first de luxe cabin planes in regular passenger service... first 4-motored passenger plane... first air-conditioned planes... first meals aloft... and many others.

WESTERN AIR LINES

AMERICA'S PIONEER AIRLINE

General traffic office: 510 West 6th Street, Los Angeles 14, California

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North Atlantic Proceeding Hailed as 'Important Forum'

Oral Argument Ends After Five Days; One Of CAB's Lengthiest

ORAL ARGUMENT in the North Atlantic route proceeding was concluded before the Civil Aeronautics Board last fortnight and Chairman L. Welch Pogue keynoted the importance of the proceeding when he characterized it as the forum in which the issues of chosen instrument vs regulated competition, the postwar impact of air transportation on the merchant marine, and the problems of foreign competition should be given a thorough airing.

"I think this is the forum where we have to canvas this whole problem exhaustively and very carefully," Pogue said in urging airline and other counsel to contribute complete and exhaustive answers to those questions.

The argument was one of the longest proceedings of its kind ever held before the Board, requiring the better part of five days to complete. At stake were a minimum of four international routes linking the major cities of the U. S. with the principal capitals of Europe.

First of the issues to be aired was monopoly vs regulated competition. Hamilton O. Hale, counsel for American Airlines, declared that the CAB was bound both by present law and by its own pro-

mulgations to follow a philosophy of regulated competition in laying out a pattern of routes across the North Atlantic.

Henry J. Friendly, Pan American Airways counsel, was quick to answer that contention, declaring that "on the contrary, the law makes it plain that American-flag competition in air transportation is not mandatory."

"The question whether there should be American-flag competition on the North Atlantic—and if so, how much—is not something that is determined by law. It is something to be determined in this case."

Cognizant of 'Pressures'

Hale asserted that the philosophy of regulated competition is as "sound as the 10 commandments," and that while he had no fear that the CAB would go along with the competitive theory, he was nevertheless cognizant of "pressures" being brought to bear on every side in favor of the chosen instrument.

At another point, Hale said that "every sort of thing" has been done in an effort to change the philosophy of competition with respect to international operations, yet there is no other law under which the Board can work. He said the competitive philosophy was being tried "in the newspapers and on the Hill" as though there were no such law.

William I. Denning, National Airlines counsel, asserted that his company and

CAB Calendar

Mar. 15—Hearing on Braniff Airways application to lift restrictions on Oklahoma cities (Docket 1225) (Tentative).

Mar. 16—Hearing on TWA's application for non-stop service, Detroit-St. Louis (Docket 1715).

Mar. 17—Hearing on National Airlines application for non-stop service, Jacksonville-Miami (Docket 1700).

Mar. 24—Hearing on National Airlines application to include New Bern, N. C., as a stop on Route 31 (Docket 1506) (Tentative).

Mar. 27—Hearing on non-scheduled investigation (Docket 1501).

Apr. 2—Hearing on National Airlines rate case.

Apr. 3—Prehearing conference on Mid-Atlantic area applications (Docket 674 et al.).

Apr. 4—Prehearing conference on Boston-New York-Atlanta-New Orleans applications (Docket 581 et al.).

Apr. 23—Prehearing conference on Kansas City-Memphis-Florida application (Docket 1051 et al.).

Apr. 30—Hearing on TWA-Chicago & Southern interchange agreement (Docket 1704) (Tentative).

every other applicant had entered the proceeding "with the definite conviction that the North Atlantic route should not be frozen by Pan American or American Export.

Leslie Craven, American Export Airlines counsel, asserted that Pan American's efforts in favor of the chosen instrument were "absolutely contrary to the public interest and argued that the greater the number of American flag carriers consistent with traffic needs, the



Forum on Monopoly vs. Competition—Oral argument in the CAB's North Atlantic proceeding developed into what Chairman L. Welch Pogue termed a forum to air the questions of monopoly vs. regulated competition in international air transportation. This photo shows Alexander Nichols, (left) counsel for Trans-Oceanic Air Lines, arguing his case before the Board. Board members (left to right) are Oswald Ryan, Edward Warner, Chairman Pogue, Harlee Branch and Josh Lee. In the foreground (backs to camera) are Public Counsel James Highsaw and John Wanner, and Examiner Ferdinand D. Moran.



WHEN OUR WAR JOB
IS FINISHED

AN AIR-BORNE WORLD WILL STILL

Count on
urtiss ommandos





...count on Curtiss Commandos

FOR PASSENGER COMFORT

Comfort contributed by luxurious interior styling and basic improvements in design! Comfort assured by smoother flight! These, and other features, promise to give the post-war Curtiss Commando passenger appeal that will reflect itself in airline earnings.

Adequate aisle space will permit walking through the big roomy cabin without annoying other passengers. Seats will be fashioned for restful flying with plenty of leg room between them. Cabin heating will be controlled so that 70° may be maintained even though outside temperature falls to 40° below zero. There will be a complete change of air every two minutes...and no disturbing drafts.

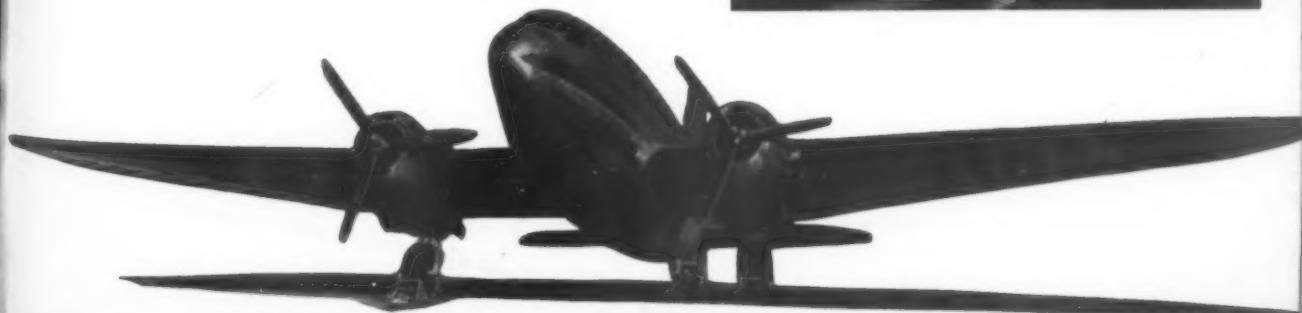
General cabin illumination will be provided by restful, fluorescent ceiling fixtures. Each passenger will have his own individual reading light that will not interfere with the adjacent passenger.

The cabin will be so insulated that one may converse in a normal tone. From the mechanized sky-kitchenette the hostess will rapidly serve all passengers with assurance that foods will be sizzling hot or properly chilled.

Curtiss-Wright cordially invites airline operators to study Commando comforts in detail, certain that they will recognize their travel-stimulating, revenue-building values.

Two Separate Lavatory Lounges

A gentlemen's lounge with every convenience of home—for milady, a powder room complete with make-up table, full length mirror and outlets for all electrical accessories! More reasons why air travelers will patronize the lines that fly Commando transports.





The Commando is Economical to Maintain

Curtiss-Wright's experience with the Army version Commando C-46 has yielded a fund of knowledge from a maintenance standpoint that will prove invaluable to the airlines operating these planes postwar.

Simplicity and accessibility are combined for fast, easy maintenance—whether line servicing or major overhaul.

Single unit cowls afford easy entry to interchangeable power plants. Each power unit, including cowl, oil tank and firewall, is readily removed and replaced.

Individual, face-mounted instruments may be removed without disconnecting, and instrument panels are entirely interchangeable.

Battery and hydraulic service is conveniently accomplished from the ground. Brake components, landing gear, electrical connections and tail gear are all easily reached and serviced.

The generous-sized luggage and cargo compartments will facilitate fast handling of cargo from the ground and quick entrance to operating units and systems housed within them.

Every possible feature has been included in Curtiss Commando engineering that will cut time lag on the ground, save service costs and keep these aircraft in the air more hours per day. Curtiss-Wright Corporation, Airplane Division.



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greater would be the discouragement to foreign flag carriers to enter into international operations.

"Nothing could be more absurd than the argument that the more American-flag operators there are in the North Atlantic, the fewer foreigners there will be," Friendly countered.

"Our success against foreign competition is going to depend upon rendering the best possible service at the lowest possible cost. If one company can do a better job than two, as we think it can, there will be less foreign competition against one than against two American companies."

Craven described the examiners' report in the case as sound, pointing out that it established competition "where the traffic can stand it," primarily between the U. S. and London and the U. S. and Calcutta, which serves as a co-terminal point for two of the proposed international routes.

Craven said the examiner's report had struck a happy balance by allocating one strong and one weak route to each of the carriers recommended. He said there was no necessity for a third carrier, although he conceded that Transcontinental and Western Air was the "nearest contender" for a third carrier.

George Spater, TWA attorney, injected still another issue into the proceeding when he asserted there was "no real prospect" that Pan American and American "will compete at arm's length" in international operations since they are affiliated through Aviation Corporation, which, he said, has stock holdings in both carriers.

In the 'Same Family'

Characterizing Aviation Corp., as a holding company, Spater said that its holdings include 9.5% of the stock of Pan American and 25% of the stock of American. He emphasized that control of the two airlines by the holding company was not the important issue. The fact that they are in the "same family" would result in an influence which would produce no "sharp edged" competition.

Spater pointed to the recent announcement that Pan American was contracting for the purchase of large Consolidated Vultee Aircraft Corp., transport planes as another link in the close relationship between Aviation Corp., and the carriers. Consolidated Vultee, he said, is a subsidiary of Aviation Corp.

CAB Member Branch asked what significance TWA saw in the alleged relations between Pan American and American. Spater replied that the Board in the American Export-American Airlines acquisition case had pointed to the need for competition to Pan American in transatlantic, and that if a mutual organization had holdings in each company the result would be "a nice easy cooperation between the two parties."

With respect to TWA's aspirations for international routes, Spater said that his company wanted Route I between the U. S. and London, extending it onward to Cairo and Calcutta as a part of its proposed 'round the world system.

Hale answered TWA's charges with an assertion that "it may be observed that this is an argument advanced by a carrier who apparently despairs of the effectiveness of its meritorious arguments."

Hale said there was no mystery as to Aviation Corporation's investment in

Latin American Case:

Examiners Recommend Routes, Extensions for Six Airlines

Brown, Spang Release Report Involving Areas South of the Border

SIX CARRIERS were recommended for new routes and additional service in Central and South America and the Caribbean area in the report of Examiners Francis W. Brown and H. Heinrich Spang in the Latin American case (Docket 525 et al), released last fortnight.

In addition to recommending Pan American Airways and Pan American-Grace Airways for route extensions and additional stops, the examiners reached these conclusions:

That Western Air Lines be granted a certificate authorizing service between Los Angeles and Mexico City;

That a certificate should be issued to Braniff Airways authorizing service between Houston and Balboa, via Merida; and that Nuevo Laredo, Mexico, be included as a co-terminal point with Laredo, Tex.

That Eastern Air Lines' be granted an extension on Route 6 between Miami and Balboa via Havana and Kingston;

That American Airlines' temporary authorization between Ft. Worth-Dallas and Mexico City via San Antonio and Monterrey be made permanent subject to the restriction that service to San Antonio should be limited to flights originating or terminating in Mexico City.

The examiners recommended that Pan-agra's certificate be amended to provide for service between Balboa and Buenos Aires via Guayaquil, Lima and Antofagasta.

With respect to Pan American, the examiners held that it should be certificated for service between New York and San Juan and between New Orleans and Havana, in addition to these changes in its presently certificated routes:

That an amendment be made to its certificate to provide for service between Port of Spain and Buenos Aires via Manaus and Asuncion; that Sao Paulo be included as an intermediate point between Rio de Janeiro and Porto Alegre; that its temporary certificate between New Orleans and Guatemala City via

Merida be made permanent; and that its certificate be amended to include Curacao as an intermediate point, to include Santiago as an intermediate point between Port-au-Prince and Kingston, to permit service between Havana and Kingston and between Havana and Santiago, to permit carriage of mail between Port-au-Prince and Kingston, and to authorize service to Caracas in lieu of LaGualra and Balboa in lieu of Cristobal.

The examiners recommended that the applications of American Export Airlines, Chicago & Southern Airlines, Colonial Airlines, Delta Air Corp., Grace Lines, Atlantic, Gulf and West Indies Steamship Lines, Moore-McCormack Lines, National Airlines and Waterman Steamship Corp., be denied.

The report dealt directly with the Pan American argument in favor of a "community company" as contrasted to regulated competition, and concluded:

"... Competitive American flag services in the Latin American area where there is sufficient volume of traffic would contribute to the development of an adequate air transportation service, and that insofar as Pan American's claim for a new service rests solely on the alleged desirability of performing all Latin American services by a single American company such a claim should be disregarded."

The report recognized that many of Pan American's arguments in favor of a monopoly were sound, but that they "fell short of accounting for the entire gap in quality and progressiveness between Pan American and the domestic carriers."

"The present high state of efficiency of the latter stands as a tribute to the effectiveness of a competitive system."

With respect to the entry of steamship companies into air transportation, the examiners stated:

"It is concluded that none of the proposals of the steamship applicants is limited to using aircraft in a manner only auxiliary, supplementary or incidental to the existing steamship service, and therefore none of them can meet the requirements of the second proviso of section 408 (b) (of the Civil Aeronautics Act) that the proposed air service enable the applicant to use aircraft to public advantage in its operation."

Spater suggested that Pan American might also be certificated between the U. S. and London, with the latter's route terminating at the British capital. The result would be five routes instead of four as proposed by the Board between the U. S. and European capitals.

Friendly took direct issue with this proposal, asserting that it would result in Pan Am maintaining a staff in London and at off-line points throughout Europe to handle an estimated 36 passengers a day.

"How are our overseas and international operations ever to achieve the low costs of our domestic services if the

American. "The original capital which started American Airlines was furnished by AVCO when the aviation business was not like it is today and capital for such enterprises was difficult of obtaining."

"If Mr. Spater's premise is sound that competition will be rendered less keen between two carriers by means of a common investor, then at all times a carrier must keep an eye over his shoulder to see if its coat-tail has not been tied to its competitors by that insidious creature—the common investor, who believes in the integrity of the respective managements and the future of air transportation generally."

Board is going to follow any such policy as this?" Friendly asked.

At another point, Spater declared that arguments for the chosen instrument did not stand up in the face of maritime history.

He said that in the case of U. S. shipping between this country and channel ports, only 10% of the traffic had been carried by American flag lines. United States Lines served this run, he said, without competition from other American flag carriers.

In the South American and Asiatic trade, however, U. S. flag lines carried 50% of the business under competition. With respect to air carriers, Spater said there should be as many operators as the routes would soundly justify, with three carriers offering greater and more diversified service.

Melvin J. France, counsel for Moore-McCormack Lines, set off the issue of the entry of steamship companies into the air when he asserted flatly that his company would not have applied for an air route had the CAB not paralleled its sea route across the North Atlantic.

Foresees 'the End'

France maintained that if the steamship applicant could prove its fitness and ability to operate an airline then it should be certificated, adding that if the CAB closed the door on steamship companies in the proceeding then "it is the end."

Under questioning from Branch, France conceded that in the operation of Route III, which Moore-McCormack seeks, there would be an "absence of competition" and in that particular instance restraint of competition in a sea-air operation by a single company.

Pogue also pursued this line of questioning, bringing out the point made in the brief of the Department of Justice that a coordinated sea-air service by Moore-McCormack would amount to restraint of competition. France said that his company was interested in both serv-

Kansas-India in 33 Hours

Postwar flights to China and Australia in 24 hours or less have passed from the possible to the probable stage with the revelation by Marvin Hooker, a Boeing engineer, that a B-29 Superfortress recently flew from Kansas to Eastern India in 33 hours. A transport version of the B-29 has already been announced, and the military prototype of this plane recently crossed the continent in 6 hours and 3 minutes.

ices, but added that "we can't disavow that we are interested in self protection."

CAB Member Josh Lee asserted that if France's proposal that steamship companies be given air routes paralleling their sea routes was carried out, then the CAB would have to certificate all steamship companies since there would be no place to draw the line. France conceded that Lee's conclusion was warranted, but emphasized that he spoke only for Moore-McCormack.

Attorney General Clarence A. Barnes of Massachusetts and Henry E. Foley, counsel for the Boston Port Authority, urged the Board to designate Boston as a terminal for Routes III and IV, and recommended that at least three carriers be certificated for transatlantic service.

Foley recommended that American and TWA be selected as the carriers, but that if no transcontinental carrier is certificated, then Northeast Airlines should be named as the carrier.

The position of Boston as a transatlantic terminal was also championed by E. Smythe Gambrell, Eastern Air Lines counsel, who asserted yesterday that the Massachusetts city should not be made a "way station" on international routes.

Gambrell said that while Eastern had no applications for transatlantic service, it was nevertheless interested in that

service because of the connecting business it will receive. He recommended vigorous competition by two or more carriers, and expressed opposition to the certification of either Pan American or American Export for the carriage of local passengers between transatlantic terminals in the U. S.

Alexander Nichols, counsel for Trans-Oceanic Air Lines, asserted that it would be a "travesty of justice" to award Pan American the northern transatlantic route in recognition of its pioneering work in international flying. Nichols said that his company had pioneered that route through its flying for the RAF's Air Transport Command.

He recommended that Pan American be confined to its present routes and that the domestic carriers should not be certificated for international routes, rather that they should feed traffic to an independent transatlantic operator such as Trans-Oceanic.

Nichols said that an independent international operator can survive without a domestic system, since 80% of all passports are issued at Boston, Chicago, Washington and New York—all terminals for international routes.

Friendly declared that "we are not going to make air transportation across the Atlantic available to any number of Americans to whom it should be made available unless the rates are brought down." Another factor in this respect is equipment, he said, asserting that the goal cannot be accomplished with DC-4 and DC-6 aircraft.

Use of 'Type 10' Seen

Pan American can accomplish this goal by the use of such equipment as its Type 10 and the still larger Consolidated Vultee aircraft, but warned that "equipment of this size cannot be operated if the traffic is so divided among operators that there will not be sufficient volume to provide reasonable load factors."

"Pan American's exhibits in this case showed that, with planes such as the Type 10 and the DC-7, and a concentration of the American-flag share of traffic in the hands of a single operator, service across the Atlantic can be rendered at a passenger rate of 4c a mile and still leave the carrier an operating profit of over \$3,000,000 without United States mail pay."

Friendly said that both American and TWA had attacked these large aircraft "because they think the large plane hurts their case."

"While Mr. Spater was writing his brief telling the Board how bad a large plane was, his company was telling the public about a giant Astraliner, capable of non-stop service to Europe. Mr. Frye (Jack Frye, TWA president) tried to get out of this the other day in the Pacific case by saying the giant Astraliner was really only a modified Constellation, but you can read the ad (TWA's advertisement) and make up your mind whether that is the impression that the reader would receive."

Friendly said that the examiners in writing their report had ignored the question of operating rights to foreign countries. While some of these will be obtained without difficulty on reciprocal agreement, the attitude of Great Britain remains the key. "The point I am making is that until the Board knows what the (British) terms are, it cannot conclude that certificates for competing service should be issued."



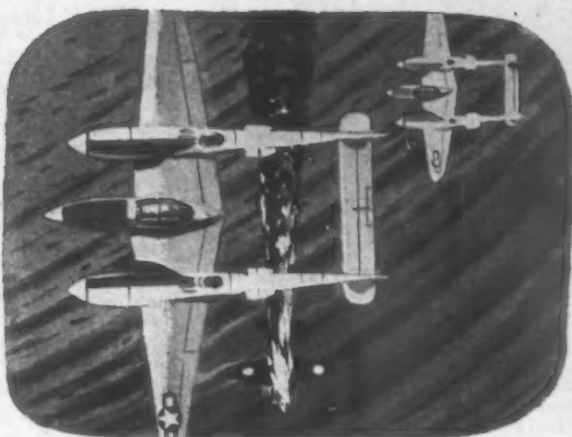
1000th B-29 Delivered—Before an audience of 20,000 employees, J. Earl Schaefer, vice-president and general manager of the Boeing Airplane Co., Wichita, delivered the 1000th Superfortress to the Army recently.

Der Gabelschwanz Teufel



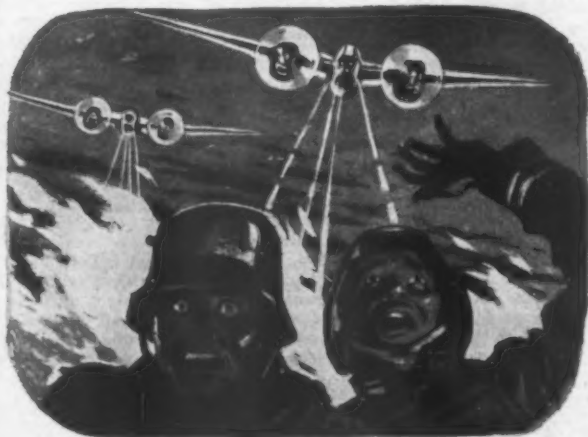
Der Gabelschwanz Teufel, "fork-tailed devil."

Named by German pilots who have been lucky enough to escape its wrath. Americans know it as the Lockheed P-38 Lightning — one of the most efficient fighters the world has ever known.



Japs know it, too. In the Pacific, it is probable that more enemy aircraft have been destroyed by the Lockheed Lightning than by any other American fighter.

The 49th group alone has a record of more than 537 planes downed in combat.



One of the most versatile of warplanes, Lightnings range far to protect heavy bombers — to photograph military positions. They can blast the enemy with machine guns and cannon, launch rockets, drop bombs or torpedoes, strafe and knock down attackers.



Lockheed builds other great planes for war. The B-17, the Navy PV, a new Army fighter and the majestic Constellation. Each contributes to victory, and each is contributing to the peace when Lockheed will again build planes for commerce and for you.

LOOK TO *Lockheed* FOR LEADERSHIP

Lockheed Aircraft Corporation, Burbank, California





Airline Turntable—To prevent stress and wearing of locked brakes and to protect tires, free-turning ball-bearing turntables have been installed at Lockheed Air Terminal. One landing wheel is placed on the five-foot plate and the brake locked. The brake on the other wheel is released and power is applied to turn the plane. Shown here are stewardess Beth Parker and mechanic Dave Braun of United Air Lines examining the new device.

Pogue Argues With American's Counsel Over World Routes

The question of competition in international air transportation was pursued by Chairman L. Welch Pogue of the Civil Aeronautics Board in oral argument before the Board on the North Atlantic route case last fortnight.

In questioning Hamilton O. Hale, American Airlines counsel, Pogue asked whether competition or the financial advantage of making traffic interchange agreements with foreign flag carriers would be the controlling factor.

"I suppose there are several different major fields of comparison—traffic solicitation, operational advantages, meeting of foreign competitors, and the international relations would be major headings as to whether or not there would be more than one carrier in this (North Atlantic) group," Pogue said.

"You (Hale) dealt with the arrangement that might be made between other transcontinental or any other domestic airline and the foreign airlines so far as traffic interchange is concerned. (Hale) had suggested that were American certificated to operate internationally, then the other transcontinental or domestic carriers not so certificated would furnish competition by entering into agreements to feed their traffic to other international carriers.)

"The question I would like to ask, to see if you could elaborate a bit is: Will the financial advantages of one arrangement, as compared to another, be the controlling feature or will it be that competitive spirit that you spoke of? You indicated, I believe . . . that the chances were the arrangements would be made by

8,500 Miles of Extensions Granted Airlines During '44

**Thirteen Carriers,
24 Routes Involved;
NWA Given Longest**

(Table on page 44)

THE Civil Aeronautics Board granted route extensions totaling more than 8,500 miles to the domestic carriers during the past year, bringing total route miles for these carriers to 63,527.

The 1944 extensions involved 13 carriers and 24 routes, some relating to relatively minor terminal changes, but the majority introducing important new patterns in the domestic airway network. The longest item was 1,035 miles for Northwest Airlines from Minneapolis to New York.

Among others were:

National Airlines, 870 miles, New York-Savannah; Western Airlines, 843, Los Angeles-Denver; American Airlines, 675, El Paso-Tulsa; 626, Nashville-Oklahoma City. Chicago & Southern Airlines, 692, Paducah-Detroit. United Air Lines, 570, Cleveland-Boston. Northeast Airlines, 404, Boston (and various stops)-New York. Transcontinental and Western Air, 511, Pittsburgh-Boston. Pennsylvania-Central Airlines, 247, Detroit-Chicago; 320, New York-Pittsburgh. Braniff Airways, 476, Oklahoma City-Memphis. Eastern Air Lines, 184, into Boston; 198, into Miami.

Also included are short additions for All American Aviation and Continental Airlines. The January, 1945, addition was for Mid-Continent, 584, New Orleans-Tulsa, and a six mile terminal change for Continental Airlines.

Col. Edgar S. Gorrell, president of the Air Transport Association said that the route mileage increase in 1944 was the greatest in the history of air transport in the U. S. except for 1929, when the total extent of the airways was considerably less than half of what it is today.

The 1944 figure represents an increase of about 15½ per cent over the route mileage at the end of 1943. A survey prepared by the Air Transport Association briefly traces the growth to this point.

The first big jump, in the early days of air transport, came in 1928, when in a

single year 6,725 miles were added, followed by the high mark of 9,284 miles added in 1929. In 1930, the additions dropped to 5,013 and the next year to 564. At that time, the total was still less than 30,000 miles; and from then through 1936 either dropped or remained about the same.

The years 1937 and 1938 saw 8 and 11 per cent increases, then a relatively static figure, followed by a 12 per cent rise in 1940. This was followed by increases of only 4 per cent and 6 per cent, respectively, in 1941 and 1942. At that point the tide began to turn and the airlines were considered able to handle the constantly mounting demand for new routes and service. The increase in 1943 was 10½ per cent.

The table on page 44 provides a complete break-down by route numbers of all routes now certificated to domestic carriers, along with changes from the original "grandfather" certification through Feb. 1, 1945.

23,784 Flights Made At Detroit During Year

The 1944 report of the Detroit City Airport reveals that three major airlines and one intrastate line operated 23,784 flights during the year and carried 278,598 passengers in and out of the airport. Five additional airlines have been granted routes to Detroit, and the number of daily flights is expected to reach 200 in 1945.

Air mail handled at the field station amounted to 4,265,999 pounds, a 40 per cent increase over 1943. Air express was up 10 per cent over the previous year with 187,721 shipments totalling 6,127,733 pounds. Total landings and take-offs for the year were 264,743 or 40 per cent ahead of 1943. They included 23,784 air carrier, 3516 military, 2602 civilian cross-country and 234, 841 civilian local. Personal aircraft hangered at the airport number 173 and range in size from light trainers to twin-engine amphibians and landplanes.

Seven companies operated planes from the field for charter service and instruction.

domestics, not certificated (for international operations), with foreign lines for interchange.

"I wondered," Pogue continued, "if you assumed that was because the financial arrangements would be better or if it was the indirect effect that would be most in the minds of the domestics making such arrangements?"

Hale replied that he was unable to separate those points, and Pogue added that there would be bidding for the business. Hale agreed.

"If you did not get a transatlantic certificate, and Pan American offered you a larger cut than the foreigners did, might not the financial advantages be the controlling consideration," Pogue asked?

"I think that in the final analysis competition breaks down under the question of the financial advantage," Hale replied. "I think that is true of all business."

"Probably so," Pogue continued, "but putting it that way, it is a question of who bids the highest for the best traffic interchange, isn't it?" Hale said that was true from a financial standpoint.

"What I am trying to get at is whether or not there is anything inherently involved which would compel a domestic to make an arrangement with the foreign airlines that you can't get away from in this picture or whether it is a question of who is willing to pay the most for the traffic interchange advantages that might result."

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A world-famous name, symbolic of the highest standard of Aviation Training. Honored by citations for distinguished service in training Army Air Force personnel, the schools under the personal supervision of Major C. C. Moseley, president since 1929, have trained more than 20,000 pilots and 7,500 crew members with an unparalleled record of safety and efficiency, at the same time continuing to train thousands of civilians for the production front.

It is therefore fitting that in preparation for the post-war activity these schools should come under the name "Cal-Aero," with the technical phase of training provided by Cal-Aero Technical Institute (formerly Curtiss-Wright Technical Institute). Today, as heretofore, it operates under the same management, same personnel, at the same location on its own giant airport. "Cal-Aero" provides the same fine specialized, modern and progressive training that has made this school pre-eminent in the educational field of Aeronautics since 1929.

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PRES. SINCE 1929

GRAND CENTRAL AIRPORT

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(LOS ANGELES COUNTY)

BUY MORE
WAR BONDS

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GIVE TO THE
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CURTIS-WRIGHT & TECHNICAL INSTITUTE
CAL-AERO

TRANSPORT

(Story on page 42)

Carrier	Route No.	Route Miles Certificated by Routes			Total Route Miles Certificated			Increase
		Under Grandfather Clause	Other	As of Jan. 31, 1945	Under Grandfather Clause	Other	As of Jan. 31, 1945	
All American	40-A	316	333	1332 ('40)	1568	236		
	40-B	309	338					
	40-D	178	178					
	40-E	202	202					
	40-F	327	517					
American	4	1330	2105	6828	9868	3072		
	7	834	866					
	18	261	262					
	21	608	606					
	22	488	510					
	23	1617	2243					
	25	745	745					
	30	943	951					
	56	60 ('41)	60					
	FAM 26	1539 ('42)	1539					
Braniff	9	953	975	2543	3951	1408		
	15	1213	2411					
	50	377	565					
Caribbean-Atlantic	59	204	204	204 ('42)	204			
Catalina Air Transport	NM 29	61	29		61	32		
Chicago & Southern	8	917	917		2121	204		
Colonial	53	504 ('40)	1204					
Continental	FAM 1	324	335	324	335	11		
	29	624	624	624	2394	1770		
	43	418 ('39)	550					
	60	560 ('42)	614					
Delta	24	1091	1230	1091	1872	781		
	54	382 ('41)	382					
Eastern	5	2209	2546	3276	7614	2338		
	6	1211	1550					
	10	922	1199					
	40	934	1280					
	47	406 ('40)	1039					
Esair	64	695	695	695 ('43)	695			
Hawaiian	33	356	356	356	356			
Inland	28*	573	609	1132	1228	96		
	35	559	559					
Marquette	NM* 563	563	563					
Mayflower	8	125	125					
Mid-Continent	26	1113	1825	1113	2522	1409		
	48	697 ('40)	697					
National	31	352	1500	671	2019	1148		
	39	519	519					
Northeast	27	648	875	648	1404	756		
	65	404 ('44)	404					
	70*	125 ('45)	125					
Northwest	3	2507	3185	2507	4364	1857		
	45	144 ('40)	144					
	69	1035 ('44)	1035					
PCA	14	546	620	2015	3995	1890		
	32	407	778					
	34	330	330					
	41	347	474					
	46	189	215					
	51	473 ('40)	500					
	55	642 ('41)	988					
TWA	2	2595	2930	3740	7743	1994		
	36	241	246					
	37	695	855					
	38	277	279					
	44	1941	1957					
	58*	563 ('41)	563					
	61	396 ('44)	402					
	67	511 ('44)	511					
United	1	3804	3893	5321	6513	1192		
	11	1299	1437					
	17	96	96					
	57	122	128					
	62	389 ('43)	389					
	66	570 ('44)	570					
Western	13	713	903	1237	2760	1523		
	19	524	524					
	52	163 ('40)	163					
	63	327 ('43)	327					
	68	943 ('44)	943					
TOTAL (All Carriers)			39,267		65,527	24,260		

* This column includes route miles certificated after application of the Grandfather clause of the Civil Aeronautics Act of 1938.

* Parenthetical figure indicates year in which company or route was certificated to operate.

* Acquired by Western Air Lines, but not shown in Western's total route miles.

* Acquired by TWA and now shown as Route 53.

* Acquired by Northeast Airlines and now shown as Route 70.

* Marquette Route.

'See You Higher Up'

The war is bringing plenty of new language and quips in the aviation business. Out of the Pacific has come the phrase, "I'll put you through the channels," to answer any sort of request whatever. Out of the pilot training schools has come this parting remark, "I'll see you higher up," instead of, "So long."

CAB Roundup

AA Routes Consolidated

The consolidation of American Airlines Routes 7 and 21 and that portion of Route 23 between New York and Albany into a single route to be known as Route 7 was approved. The decision involved no new service or stops, but will permit the inauguration of non-stop service between Chicago and Boston.

The CAB also issued American a separate certificate for Windsor, Ont., thus separating the carrier's international and domestic operations. The decision was approved by the President. The application was heard as a part of the Milwaukee-New York case, decided by the Board, Dec. 16.

Alaskan Routes Urged

The Postmaster General last fortnight asked the issuance of certificates to permit permanent mail service on six routes in Alaska. The routes now are served by air under temporary star route authorization.

The procedure calls for applications to be filed for the routes, followed by public hearings as in the case of new route proceedings. The routes requested and the carriers presently serving them are:

Nome to Kotzebue, via Deering and Candler; Alaska Airlines (Docket 1759); Kotzebue to Barrow, via Kivalina, Point Hope, Point Lay and Wainwright; Wien Alaska Airlines (Docket 1760); Kotzebue to Kobuk, via Noorvik, Kiana, Selawik and Shungnok; Wien Alaska (Docket 1761); Juneau to Ketchikan via Petersburg and Wrangell; Alaska Coastal Airlines (Docket 1762); Juneau to Sitka; Alaska Coastal (Docket 1763); Nome to Gambell; Wien Alaska (Docket 1764).

Three Divisions at Hearing

The North Central hearing (Docket 415 et al) in Hotel Fort Des Moines, Des Moines, Iowa, is being heard in three divisions, according to Examiner F. Merritt Ruhlen.

The groupings are (figures in parenthesis are the docket numbers):

Group 1—American Airlines (1614), Chicago & Southern (1064, 1073), Eastern Air Lines (1500), Fliteways (1683), Pennsylvania-Central Airlines (1625), Midwest Airways (1272), North American Airlines (1601), North Central Airways (1571), Northern Airlines (1602), Racine Flying Service (1156), Wisconsin Central Airlines (1464, 1757).

Group 2—Central States Aviation Corp. (1118, 1320), Hannaford Airlines (1619), Mid-Continent Airlines (877, 884), Northwest Airlines (650, 1095, 1101, 1242), Parks Air Transport (1624), United Air Lines (583, 1214, 1467), Western Air Lines (1449, 1452, 1465), Inland Air Lines (899, 1620, 1621).

Group 3—Automatic Air Mail (415), Bos Air Cargo (1128), Burlington Transportation Co. (1615), Century Aviation Co. (680), Chicago, Black Hills & Western Air Lines (780), Clear Ridge Aviation (1265), Iowa Airplane Co. (1211), and Transcontinental & Western Air (1029).

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FINEST RADIO STATION



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CAB Should Only Administer National Policy, Says Ryan

Board Member Makes Statement to Counsel For Moore-McCormack

THE QUESTION of whether the Civil Aeronautics Board should consider the coordination of types of transportation, or limit its activities to the air only, was propounded by CAB Member Oswald Ryan in oral argument before the Board last fortnight.

Ryan's remarks were addressed to Melvin J. France, counsel for Moore-McCormack Lines, which seeks to establish a coordinated sea-air service across the Atlantic. Following is a partial text of Ryan's statement:

"It is my own opinion, and I think the Board will agree with me, that the duty of this Board is not to make the law, is not to determine national policy with respect to the relationship between surface transportation and air transportation, that it is the duty of the Board to administer a policy which has been declared by Congress, so the only question really before us today is not the question of what the policy should be, not whether it should be a policy which should protect the merchant marine with the same care in decisions as it would protect the development of a maximum air transportation, but the sole question is whether or not that is the law or whether or not it would require further action by Congress in order to accomplish the fulfillment of that policy.

Gets M-M's Position Clear

"... As I understand it, your (Moore-McCormack's) position is that the Board in deciding this case should give serious consideration to the plight of the steamship companies. As you put it, I think, the American Merchant Marine should take consideration of the fact—of the claimed fact at any rate—that its entrance into air transportation is essential to the accomplishment of national interest, or what you call the public interest and the Board will be recreant in its duty if it doesn't consider as a factor in its decision, the effect which the competition of air transportation will have upon surface transportation, particularly steamship transportation.

"That, as I understand it, is your position, and the only question for us is whether that is a correct statement of the law and policy as it has been handed to us by Congress.

"Now, if I am correct in that analysis, then, in determining whether or not we should consider the effect upon surface transportation, the effect upon this particular steamship applicant (Moore-McCormack), if it should be denied a certificate, and the effect on the whole American Merchant Marine, if others should be denied certificates, would you give any significance to the fact that there are provisions in this statute which seem—which seem on their face at least—to limit the Board's consideration to the development and to the conserving of the interest in air transportation rather than any other form of transportation.

"... The basis of your (Moore-McCormack's) argument as I have read it in the interpretation which the Examiner places upon it in his report, and the interpretation which you, yourself (France) have placed upon your argument, would require me as a member of this Board to consider as being in the national interest and as one of the controlling considerations, the conservation of another form of transportation.

"Now, I am troubled—and this is the first time this question has ever been presented to the Board by a steamship company proposing directly and without the intervention of the subsidiary to engage in air transportation—but I am deeply concerned that we shall reach the right conclusion, the right construction of this statute (Civil Aeronautics Act), and I am concerned by the fact that Congress has given us a statute here which in

Section 2 doesn't say a word about the development of an integrated transportation system in which all forms of transportation shall be integrated, each in decisions so dealt with as not to impinge upon the other or to impair the other by competition, but that on the contrary the Congress here has told us that the purpose of this national policy is not the integration of all forms of transportation, but is the development of an air transportation system which will be adequate to the needs of our commerce, our postal service and our national defense.

"Now the presence of that basic declaration of Congress in this Act imposes upon me a guide in deciding whether the basis of your argument has merit..."

New Toledo Terminal Asked

Officials of United Air Lines, Transcontinental & Western Air, and Chicago & Southern Air Lines have suggested to George N. Schoonmaker, Toledo city manager, that the city construct a temporary terminal building at the Municipal Airport.

American Files Objection to 32c Mail Pay Rate Proposed by CAB

Not in Accord With Civil Aeronautics Act, Airline Brief Argues

AERICAN AIRLINES last fortnight filed its answer to the CAB's show cause order of Jan. 2, expressing objection to the rate of 32c per ton mile mail pay on the grounds that it is not in accord with the rate making standards and policies of the Civil Aeronautics Act.

"The Board's reduction of mail pay compensation from 60c per ton mile to 32c per ton mile contemplated a reduction in American's total revenue of \$3,838,000," the answer stated. "Passenger fare reductions which are being introduced by American will reduce its total annual revenues approximately \$4,408,000."

American stated that it anticipated an operating deficit of \$1,164,000 before mail pay for 1945 and that if the "Board's tentative mail rate of 32c per ton mile becomes effective, the estimated net earnings of \$1,933,000, after taxes would not provide an adequate return on the total capital employed by American in its operations."

The answer held that this return "would be insufficient to insure the attraction, except at premium rates, of investor capital necessary in the impending postwar expansion of air transportation."

"The scope of American's contemplated 1945 services is so great and the margin of profit so slight, reflecting a high operating ratio, that even a minor miscalculation in the revenue load or in the anticipated expenses could convert the profit into a deficit.

"If passenger revenues are computed on the basis of a normal load factor of 67%, instead of 85% as now anticipated, the profit of \$1,933,000 would be changed to a loss of \$3,103,000. Even application

of the new net yield from passenger fares of 4.76c per revenue passenger mile on the basis of a full year's operations instead of for a portion of the year reduces the net income from \$1,933,000 to \$1,438,000."

The answer stated that "American disagrees with the philosophy of mail rate making reflected in the order to show cause in that it does not recognize all of the rate making elements set forth in the Act or those normally recognized in rate making generally."

American holds that the CAB in this respect did not give consideration to the value of the mail service rendered nor did it consider "the condition that such air carriers may hold and operate under certificates authorizing the carriage of mail only by providing necessary and adequate facilities and service" for such transportation.

The answer stated that the mail rate fixed by the Board "should provide sufficient compensation to encourage further reductions in passenger fares looking toward the promotion of mass air travel; the inauguration of new equipment for the greater development of air transportation; the pioneering and development of Airfreight, and the establishment of lower rates for air express; and the development of air mail, which cannot be promoted under rates providing a margin of profit substantially less than the profit margin on other classes of traffic."

"The mail rate established by the Board should also take into account the uncertainties with which the air carrier will be faced in the immediate future such as increased prices and wages, the development of more intense competition, the employment of new equipment, the expansion of air transportation into smaller communities, and over new routes where the density of traffic is not definitely ascertainable."

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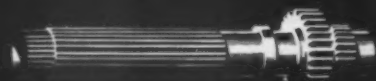
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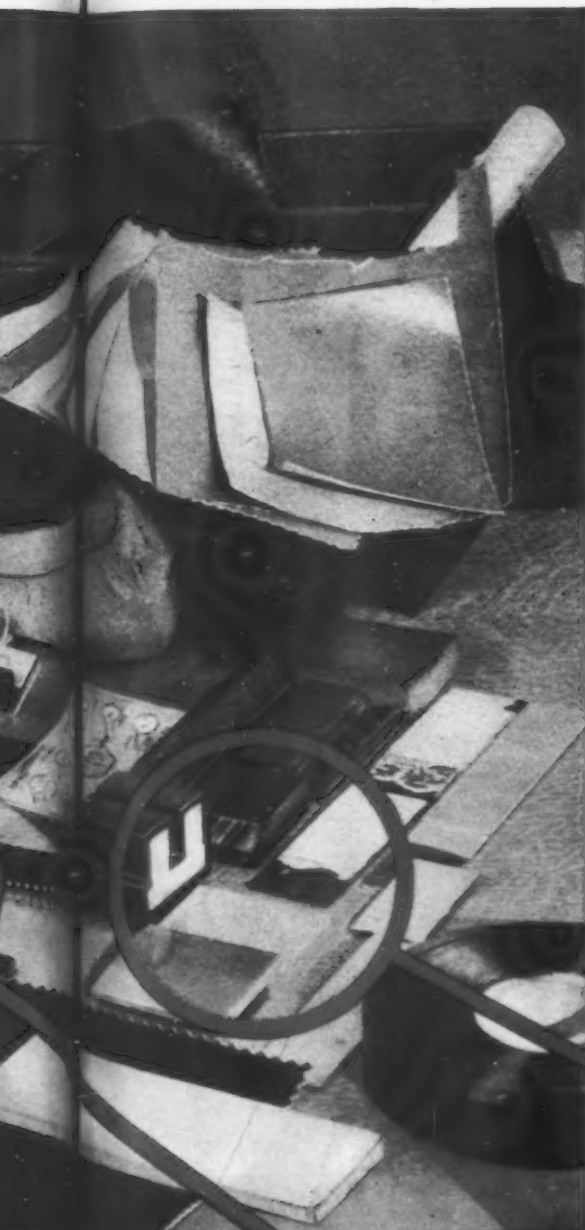
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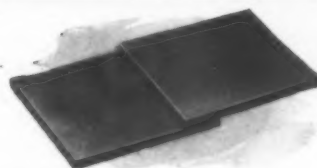
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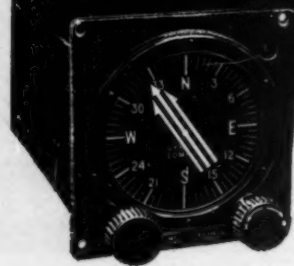
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CAB Docket Section Reports:

Several Lines Plan Extensions; New Feeder Applications Filed

PROPOSED route extensions by presently certificated carriers highlighted developments in the CAB's Docket Section during the past fortnight. Among applicants proposing the extensions were Transcontinental & Western Air, Northwest Airlines, and National Airlines.

Feeder applications proposed service in Texas, New Mexico, Arizona, South Dakota, Nebraska, Michigan and Indiana. Remainder of the applications were for the approval of interlocking relationships.

Following is a round-up of the applications filed:

Continental Air Lines

This presently certificated carrier and Josiah G. Holland have filed a joint application for the approval of an interlocking relationship for Holland to serve as general attorney and a director of Continental and as president of Northwestern Terminal Railroad Co., of Denver. (Docket 1782).

Essair, Inc.

This company and W. S. Long have filed an application with the CAB for approval of an interlocking relationship for Long to serve as president and chairman of the board of Essair and as president and director of the Dallas Aviation School and Air College. Long is also associated with the Dallas Aviation School and Terrell Aviation, Ltd. (Docket 1765).

National Airlines

This presently certificated carrier has amended its application under Docket 1710 asking an extension of its Route 39 from Pensacola, Fla., to Boston, via Montgomery, Greenville, Asheville, Roanoke, Charlottesville, Washington, Baltimore and Philadelphia. The application originally sought an extension from Pensacola to Philadelphia.

Northwest Airlines

This presently certificated carrier has filed an amendment to its application under Docket 679, proposing service from Detroit to Washington, D. C., via Cleveland and Pittsburgh. The original application proposed service to Washington from Chicago via Dayton, O. The Detroit-Washington service would comprise an extension of Northwest's present Route 3 from Milwaukee.

Transcontinental & Western Air

This presently certificated carrier has filed two applications with the CAB seeking to extend Route 61 from Wheeling, W. Va., to Detroit, via Canton-Massillon and Toledo, O., and to add Detroit, Toledo, and Cleveland on Route 44. Route 61 runs between Dayton, O., and Washington.

The application proposes to extend the Kansas City-Chicago segment of Route 44 beyond Chicago to New York, via Detroit, Toledo and Cleveland, and beyond Chicago to Pittsburgh, via Toledo. (Dockets 1755, 1756).

Hannaford Airlines

This applicant has amended its application under Docket 1619 to provide for additional routes and requesting authority to operate with a pickup device in addition to conventional aircraft service.

K. F. Hodson

This applicant of Martin, S. D., has filed an application for the transportation of persons, property and mail on two loop routes out of Martin, one serving nine intermediate points in South Dakota and Nebraska, and the other seven intermediate points. (Docket 1781).

Mrs. W. T. Lanier

This applicant of 1403 Montana St., El Paso, Tex., has filed an application for the transportation of mail only (persons and property as the need arises) for two loop routes out of El Paso, one serving 12 points in Texas and four in New Mexico, and the other serving seven points in New Mexico and five in Arizona. (Docket 1783).

LeFors Brothers

This applicant has filed an amendment to its application under Docket 968 to change the company name to Border Airlines.

James B. Maguire, Jr.

This applicant of Jenkintown, Pa., has filed an amendment to his application under Docket 1729, proposing service to these additional terminals: Philadelphia-Mrie, Pa.; Philadelphia-South Waverly, Pa.; Philadelphia-Matamoras, Pa.; and Philadelphia-Pittsburgh.

Michigan Central Airlines

This applicant of Bishop Airport, Flint, Mich., has filed an application with the CAB for four routes over which it proposes to use Lockheed Saturns in the carriage of persons, property and mail. The routes and their terminals are Detroit to Traverse City, Mich., via four intermediate points; Tri-Cities Airport and Indianapolis, Ind., via five intermediate points; Indianapolis and Sault Ste. Marie, Mich., via nine intermediate points, and Tri-Cities Airport to Pellston, Mich., via two intermediate points. The Tri-Cities Airport embraces Saginaw, Bay City and Midland, Mich.

The application states that Michigan Central has been operating a scheduled intrastate service within Michigan since Feb. 2, 1944 from Detroit to St. James, via Bay City, Flint, Saginaw, Midland, Lapeer, Cadillac, Mount Pleasant, and Charlevoix. Mail has been carried between Charlevoix and St. James, Beaver Island, on a star route contract with the Post Office Department. (Docket 1754).

Russell C. Schumacher-K. H. Erickson

This partnership of New England, S. D., has filed an application for the transportation of persons, property and mail between Williston, N. D., and Black Hills Airport, S. D., via Watford City, Killdeer, Dickinson, New England, and Bowman, N. D.; Buffalo and Belle Fourche, S. D. (Docket 1758).

Wisconsin Central Airlines

This applicant has filed an application with the CAB seeking approval of interlocking relationships for four of its officials. They are Francis M. Higgins, president, to serve as industrial researcher for Four Wheel Drive Auto Co.; Arthur E. Schwandt, secretary, to serve as special executive accountant for Four Wheel Drive; Garnet P. DeCoursin, director, to serve as industrial engineer and manager of the standards department of Four Wheel Drive, and Walter A. Olen, director, to serve as vice president and director of the Clintonville Transfer Line. (Docket 1757).

Blomquist Resumes

Eastern Airport Post

Maj. Albert E. (Pete) Blomquist has been released from the Army Air Forces, and has returned to Eastern Air Lines to resume his former post as airport engineer. He will make his headquarters in Miami.

Blomquist obtained a leave of absence from the company to accept a commission as captain in the AAF Oct. 12, 1942. First stationed at Indianapolis with the Troop Carrier Command, he was later sent to Washington as a staff officer assigned to logistical planning for the TCC and for



Blomquist

airborne operations in all theatres of war.

For six months prior to his entry into the armed forces, Blomquist had served as a consulting engineer to the AAF and the U. S. Public Roads Administration. While on this assignment he urged the construction of 12 emergency landing fields along the military air route between the United States and Alaska. He selected the locations between Dawson Creek, B. C., and Fairbanks, Alaska, flying the course three times. Eight emergency landing fields were constructed and four sites held in reserve.

CAB Orders Affecting Air Carriers

3486—Show cause order fixing mail pay for Caribbean Atlantic Airlines.

3487—Vacating show cause order on interlocking relationship of A. Gami and Eastern Air Lines. (Docket 15-409 (A)-1, 164).

3488—Granting Department of the Interior and Territory of Alaska permission to intervene in the Pacific case (Docket 547 et al.).

3489—Dismissing application of Prairie Airways (Docket 1633).

3490—Dismissing application of Olson Steamship and Navigation Corp. (Docket 1570).

3496—Granting Aberdeen, S. D., and Sioux City, Ia., permission to intervene in the North Central case (Docket 415 et al.), and denying such permission to Cincinnati, Detroit, and Sioux City Chambers of Commerce.

3497—Denying motion of National Airlines to amend application in Docket 1587.

3498—Withdrawing applications of North Central case, and deferring action on them.

3502—Granting New England Steamship Co., permission to intervene in the New England case (Docket 399 et al.).

3509—Granting Greater Miami Port Authority leave to intervene in the National Airlines hearing for non-stop service between Jacksonville and Miami (Docket 1709).

3510—Consolidating application of Wisconsin Central Airlines (Docket 1757) in the North Central case.

3511—Granting Continental Air Lines and the City of Cedar Rapids, Ia., permission to intervene in the North Central case (Docket 415 et al.).

3512—Dismissing application of National Air Transport Co. (Docket 1421).

3513—Consolidation of applications in the Southeastern States case. (Docket 501 et al.).



Gulick

Phillips

Traffic

Jack Misselhorn, United Air Lines' DTM at Oakland, Calif., has been appointed DTM at Detroit in preparation for the inauguration of UAL service to that industrial center shortly. Stanley O. Halberg becomes DTM at Oakland, to be succeeded as assistant DTM at San Francisco by Lewis A. Swenson, who has been in charge of United's mercantile division there.

Hubert C. Watson, former assistant traffic-advertising manager of Pan American Airways, and recently special assistant to the Atlantic Division traffic manager, is now associated with Walter Dorwin Teague, New York City industrial engineer, as consultant on aviation design.

S. N. Gulick has been named station manager for Northwest Airlines at Detroit. He was formerly station manager at Minneapolis. C. A. DuRose, who has served Northwest at Seattle, Billings and Minneapolis since joining the airline in May, 1933, has assumed charge of the New York station, and M. E. Anderson, formerly assistant to the superintendent of operations for the Eastern region of NWA, has become manager of the company's home operating base in Minneapolis. C. R. Hussey has been named assistant to the superintendent of stations, Eastern Region, in charge of transportation service, and H. Edwin Larson has assumed the same position in Northwest's Western Region.

Lawrence John Adams, recently a squadron leader in the Royal Canadian Air Force and winner of the King's Commendation, has joined the staff of Trans-Canada Air Lines as traffic representative in the Winnipeg district office.

Ralph Prevost, in charge of air traffic contracts sales and commercial accounts for Eastern Air Lines in Washington, D. C., has been appointed EAL city manager in Richmond, Va.

Maintenance

Richard E. Palmer has been appointed superintendent of maintenance for American Export Airlines, succeeding Parker Mitchell, who has resigned. Palmer served with the aircraft branch of the War Production Board for two years, and was formerly director of production for Bell Aircraft Co.



Adams

Prevost



Deman

Neydon



Anderson

Hussey



Palmer

Lee

Miscellaneous

Charles H. Cuny, formerly assistant credit manager of the Caterpillar Tractor Co., Peoria, Ill., has been named credit manager of United Air Lines.

Dan K. Phillips, superintendent of ground service for Trans-continental & Western Air, has been granted a leave



Misselhorn

Halberg

of absence to become general manager of TACA Airways operations in Columbia and Venezuela.

E. L. Howard, formerly in charge of United Air Lines' reservations at Cleveland and Portland (Ore.) is on leave of absence from the airline as air priorities representative for the U. S. Maritime Commission in Portland.

Robert S. Deman, formerly of the War Department's Office of the Chief of Transportation and an industrial adviser to the War Production Board, has been named manager of the Miami office of Air Express International, Inc., general agents for the West Indies Division of KLM Royal Dutch Airlines.

Major T. Lee, Jr., former head of United Air Lines' Boeing School of Aeronautics, Oakland, Calif., who has spent the last two and a half years in the Army Air Forces Technical Training Command, has returned to United as superintendent of training.

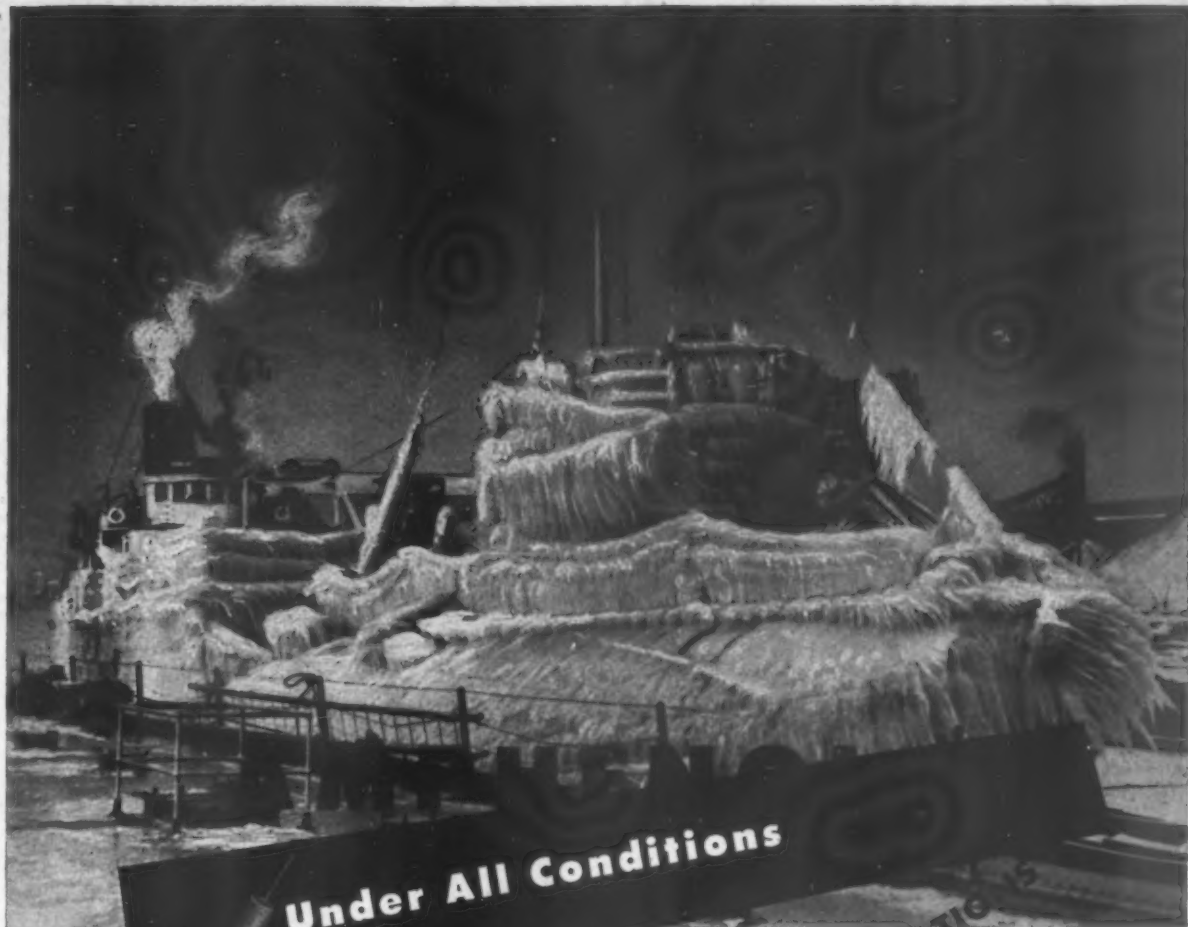
Lt. Col. James D. Henry, who before the war was assistant to C. Bedell Monro, president of Pennsylvania-Central Airlines, has been awarded the Air Medal and the Bronze Star for action with the Army Air Forces.

From Planes to Theater

Electro-mechanical actuators now used on bombers and fighters to operate engine cowl flaps, wing flaps, landing gear and other movable controls may find their first postwar adaptation in the theatre, according to John Hazel, Lear, Inc., engineer. He suggests that they will be used to move lights on Broadway and in Hollywood, and that they will permit the adjustment of whole batteries from one spot on the stage or set.

Pessimism Warning Issued

Pointing out that there are as many or more planes available to commercial operators in 1945 than in 1944, and that the release of Government-owned planes to civilian aviation had increased the amount of equipment available for civilian use, R. V. Trader, vice president of the Aviation Distributors and Manufacturers Association, has warned operators against pessimistic statements regarding a declining market for aviation products as a result of continued restriction of private aircraft production. He also has cautioned operators to not only sell the use of aircraft they personally prefer, but to contemplate the use of aircraft with a view towards customer's preferences.



Under All Conditions

CONTRIBUTES TO RELIABLE COMMUNICATION

Man's isolation under adverse conditions has ended with recent radio developments which overcome the trying conditions of air and sea transportation. This means rising above all conditions of interference. Among the things that have made this possible is Amphenol *current transmission equipment* that will carry the high frequencies without appreciable loss.

The name "Amphenol" on high frequency cables means the best of poly-

ethylene insulated cable—cable that is sold under affidavit of exacting tests and inspections. "Amphenol" on low-loss connectors means the minimum of loss in tight fitting, secure holding connections. On both it means transmission equipment that will do its part toward providing the clearest possible transmission and reception of communications even under adverse conditions.

AMERICAN PHENOLIC CORPORATION

Chicago 80, Illinois
In Canada—Amphenol, Limited—Toronto



U.H.F. Cables and Connectors • Connectors (A-N, British) • Conduit • Cable Assemblies • Radio Parts • Plastics for Industry.

Domestic Airlines Now Have 356 Planes for Commercial Service

Number Would Have Been 361 Except For Crash Replacements

AFTER GIVING EFFECT to allocations for replacement of planes destroyed in airline accidents, the Civil Aeronautics Board revealed early in March that the domestic airlines of the United States now have available 356 transport planes for commercial service. On the basis of recent allocations, the total number would have been 361 except for the replacements.

Three more transport planes were allo-

cated to the domestic airlines Feb. 28. Western Air Lines received one Douglas DC-3, and two Lockheed Lodestars were assigned to National Airlines, Pan American Airways also received a Douglas DC-3.

Two Douglas DC-3s were assigned to foreign applicants. Aerovias Nacionales de Colombia (Colombia) and TACA received the planes. Two Lockheed 12s, a business-type plane not considered in the transport categories, were assigned to Expreso Aereo Inter-Americana, S. A., Cuba. This allocation represents the last of the Lockheed 12s that have been declared surplus.

A breakdown of the distribution of equipment between the domestic airlines, based on CAB information, follows:



Slide Rule Calendar—

A special slide rule designed by George Wollinger of The Glenn L. Martin Co. has superseded the calendar for production scheduling. With the new device it takes only seconds to figure when a part must be started, or on what day detail parts will have to be on the floor to meet a due date in final test.

Alaska Airlines Size In Relation to Other Carriers Discussed

The competitive position and relative size of Alaska Airlines with respect to other Territorial carriers were among subjects brought to the attention of the Civil Aeronautics Board in oral argument before it last fortnight.

Woodley Airways and Alaska Airlines argued the issues in pursuit of their applications for route extensions between Fairbanks and Kodiak.

John Cross, Alaska counsel, asserted that for the CAB to certificate competition between Fairbanks and Anchorage would be tantamount to a direct reversal of previous opinions of the Board.

He said that Alaska Airlines still was "far too small" to have an economic operation, and that if the Board permitted additional competition over the most productive of its routes the result would only serve to further "tear down" the carrier.

Gerald P. O'Grady, Woodley counsel, argued that Alaska Airlines had submitted no estimates of diversion which would result from competition on the Fairbanks-Anchorage segment if Woodley also were certificated. He said that unless the smaller operators in Alaska were permitted to "reduce the gap" in size between themselves and Alaska Airlines lower fares and better service never would be attained.

Woodley seeks a route extension from Anchorage to Fairbanks, and from Nini-chik to Kodiak. Alaska Airlines seeks an extension of its present routes from Seldovia to Kodiak.

Cross maintained that the Anchorage-Kodiak through route would mean an extension of only 140 miles for Alaska Airlines, whereas Woodley's extension would mean a substantially new route of 435 miles. He said that between 300 and 400 miles could be saved if Alaska were given the extensions asked.

Cross said that Alaska had carried approximately 5000 passengers between Anchorage and Fairbanks in each of the years 1943 and 1944. With Lockheed Lodestar equipment, he said this repre-

Aircraft owned Dec. 31, 1941		Aircraft requisitioned for military service		On hand after requisitioned by U. S. in May, 1942		Aircraft now avail- able for commer- cial service	
No.	Type	No.	Type	No.	Type	No.	Type
All American ..	0	0		0		2	DC-2
American	15 DST	15 DST					
	64 DC-3	21 DC-3		43 DC-3		80 DC-3	
Braniff	11 DC-3	4 DC-3		7 DC-3		15 DC-3	
	5 DC-2	5 DC-2					
C & S	6 DC-3	2 DC-3		4 DC-3		8 DC-3	
Colonial Air- lines	4 DC-3	3 DC-3		2 DC-3		4 DC-3	
Continental	6 Lodestar	3 Lodestar		3 Lodestar		3 DC-3	
						4 Lodestar	
Delta	3 DC-3	1 DC-3		4 DC-3		10 DC-3	
	4 Electra	4 Electra					
Essex, Inc. ^a	0	0		0		3 Electra	
Eastern	35 DC-3	15 DC-3		20 DC-3		40 DC-3	
	5 DST	5 DST					
Inland	5 247-D	5 247-D		1 Lodestar		1 DC-3	
						2 Lodestar	
Mid - Continent	4 Lodestar	2 Lodestar		2 Lodestar		4 DC-3	
	5 Electra	5 Electra				2 Lodestar	
National Air- lines	3 Lodestar	2 Lodestar		3 Lodestar		14 Lodestar	
	2 Electra						
Northeast	3 DC-3	1 DC-3		2 DC-3		5 DC-3	
	1 Electra	1 Electra					
Northwest	11 DC-3	4 DC-3		7 DC-3		17 DC-3	
	4 Electra	4 Electra					
PCA	18 DC-3	12 DC-3		6 DC-3		21 DC-3	
	4 247-D	4 247-D					
TWA	8 DC-2	3 DC-2		25 DC-3		44 DC-3	
	21 DC-3	8 SDT					
	8 SDT	5 B307				5 B-307	
United	5 B-307						
	39 DC-3	6 DC-3		33 DC-3		61 DC-3	
	15 DST	14 DST					
	13 247-D ^a	13 247-D					
Western	5 DC-3	2 DC-3		3 DC-3		11 DC-3	
	2 DST	2 DST		1 Lodestar			
	5 247-D	5 247-D					
Total by types	37 DST	36 DST		156 DC-3		2 DC-2	
	8 SDT	8 SDT		10 Lodestar		22 Lodestar	
	222 DC-3	71 DC-3					
	13 DC-2	8 DC-2					
	13 Lodestar	5 Lodestar					
	16 Electra	16 Electra				3 Electra	
	27 247-D	27 247-D				5 B-307	
	5 B-307	5 B-307				324 DC-3	
Grand Total ..	341	176		166		356	

sented a load factor of about 50 percent.

O'Grady challenged that statement with an assertion that Alaska Airlines had used Stinson A and Lockheed Electra equip-

ment on the Anchorage-Fairbanks route, and that he had been unable to determine how often Lodestars were operated. He said the 5000 passengers carried could not be taken as an index of the traffic potential between the two points.



The Birdmen's Perch

By Major Al Williams, ALIAS, "TATTERED WING TIPS"

Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 30, Pa.

You'll have to admit one thing!
When we make a mistake, it's a dandy!
66% of the December Perch was wrong!

We were so full of good wishes that we used most of the Perch to bid Merry Christmas to everyone. That left room for only 3 Little Known Facts. 2 of them were wrong. And we're so deep in the doghouse we bark at the mailman.



Private Eugene M. Przybyla:

Your Little Known Fact about the P-47 originally having an in-line engine, was so startling that we assumed it *had* to be true. Then we talked to the fellas out at Farmingdale who build the P-47! The P-47 was designed as a radial job, built that way, and wouldn't know an in-line engine if it met one on a streetcar!

So would you look up your mechanic friend who gave you this hot tip . . . and give him a kick in the teeth?

John E. Scovill:

Your Little Known Fact about a P-38 J carrying more bomb load than a "Fort" started more "Lynch Al Williams Clubs" than Przybyla's! It *could* be true, mind you. But only with unlike factors for the two planes, such as distance, the amount of stripping necessary, etc.

We humbly apologize to the Fort builders for this inaccuracy. And now, will they please recall the B-17's they've had over Pittsburgh the last month? Honest, fellas—our office is way down in the basement and you might hurt a lot of

nice people upstairs if you let those bombs go!

As for Perch Pilots Przybyla and Scovill . . . we won't revoke your commissions, but we sure as heck are going to suspend 'em! We'll reinstate you upon receipt of another Little Known Fact *which you can prove!*

And from now on, send Little Known Facts About Well Known Planes *with proof*. Remembering we verify them again, anyhow!

HEATED HEAT AND REFINED REFINING

Here's the Army—and a cold engine.

The Army says "we want that engine to start!" So they design a heater to heat the cold engine so it'll turn over. But the heater gets cold, too. And it won't turn over!

So the Army designs a heater to heat the heater which heats the engine which turns over! And that's that!

Now here's Gulf—and some crude oil.

Gulf says "we want that oil refined!" So they design a refining technique to purify the oil so it'll lubricate. But the lubricant they get isn't as pure as they think it should be!

So Gulf designs an additional technique to refine the refined oil! That's the Alchlor Process, which gets out *extra* impurities left in the oil by ordinary refining methods.

And out comes Gulfpride, the lubricatingest lubricant that ever pampered a piston! Better try it, if you haven't.

LITTLE KNOWN FACTS DEPT.

(The following Little Known Fact About Well Known Planes came from an Air Corps Major who knows what he's talking about. But he asked us not to use his name. No difference—he sure rates a commission as a Perch Pilot (br) for this:)

"The span of a B-29 is 19 feet shorter than half the span of another plane currently under construction!"



And here's one from Jack Evans of 3918 Terrace, Kansas City, Mo. (for the luvva Pete, if you disagree, write to him—not us!)

"The old DO-X made a flight carrying 169 passengers, largest number ever carried on one flight by one plane. Date: Oct., 31, 1929!"

Kathleen Kennedy of 2 Presidio Ter., San Francisco 18, Cal., is a Perch Pilot with:

"At an altitude of 3000 feet, the most popular putt-putt has a gliding range of 20,000 acres!"

That makes three new Perch Pilots. If you want one of these commissions, send your Little Known Fact to us—with *proof*—and if it's good enough to print you'll be welcomed into the exalted ranks of Perch Pilots.

Just one more item—the war costs \$250,000,000 a day! You've got to buy a lot of War Bonds to keep up with that!



Gulf Oil Corporation and Gulf Refining Company...makers of



**GULF
AVIATION
PRODUCTS**

OIL IS AMMUNITION—USE IT WISELY



Monro Asserts Airlines Can Fly World Routes at Domestic Costs

Testifies in Pacific Hearing; TWA's Frye Outlines Proposals

PRESENTLY certificated airlines can operate international air routes at substantially the same costs as domestic routes, C. Bedell Monro, president of Pennsylvania-Central Airlines, testified in the CAB's Pacific hearing, which was concluded last fortnight.

Monro's testimony came in response to what he termed a "disparity in losses" among the several applicants proposing U. S.-Orient routes.

Monro said that PCA had based its cost estimates on the use of DC-4s. These estimates showed revenues of \$1,260,000 and a loss of \$1,590,000 before mail pay on the U. S.-Orient route. Direct flying costs for the DC-4 was estimated at 89c a mile.

This compared with United Air Lines' estimate of 53c a mile for the use of the same airplane in U. S.-Alaska operations, and Monro said that if PCA had used this figure it would have shown a profit before mail pay of \$1,055,000 instead of a loss.

PCA recommended that two carriers be certificated between the U. S. and the Orient over the northern route, one via the West Coast and the other via the inland (Chicago) route. In the event the CAB saw fit to certificate only one carrier, however, Monro said the inland route should be selected to Alaska, and thence to the Orient.

TWA Shuns Specific Stops

Transcontinental and Western Air presented a proposal under which it would serve traffic generating areas, rather than specific stops on its U. S.-Orient route, a part of TWA's proposed 'round-the-world' service.

Jack Frye, president, said his plan would give the company greater flexibility in meeting foreign competition and to take advantage of the evolution of changing conditions as they develop under international aviation. Foreign flag carriers will follow this pattern and American flag carriers must be able to do the same thing, he said.

Frye outlined proposals for daily round-trip service to Calcutta and other cities in the Orient from Los Angeles, San Francisco and Seattle. TWA also proposed a route from Chicago to the Orient via the inland route to Alaska but Frye maintained that the West Coast has a primary need for service to China-Japan-India.

Frye maintained that one of the important aspects of the U. S.-Orient route was the development by an American flag carrier of an airplane suitable for operation in all types of weather and over any known terrain.

He said the military services had not yet developed such an aircraft, and described the Constellation as the most advanced, most economical airplane to operate in the world.

Frye maintained that no second carrier was needed over the northern route to the Orient, but that TWA wanted to compete with Pan American's central Pacific route on an equal basis. The central route, he said, should not have access to central and northern China.

Other recommendations and proposals came from:

Western Air Lines—It wants a U. S.-Alaska route, via Lethbridge, and a second from Seattle to Nome to connect up the Alaska trade with the Latin trade on the Mexican border. This, witnesses said, fits the carrier's role as a north-south operator. Western opposed the entry of an Alaskan carrier into the U. S. on the grounds that it would upset the balance among Territorial carriers.

Would Use Airships

U. N. Airships—It proposed the operation of lighter-than-air ships between Washington, Los Angeles, Honolulu, Manila, Canton and Singapore. Two types of airships would be used. These would carry 2,016 round trip and an equal number of one-way passengers annually, 12,753,792,000 pounds of mail, and 42,322,640 ton miles of express and cargo of all classes.

Hawaiian Airlines—Its proposed Honolulu-Shanghai-Japan route is a logical extension of the California-Hawaii route which the company applied for in the Hawaiian case. Stanley C. Kennedy, president, said that his company was threatened with destruction unless the extension was granted, that it stood in danger of being "swallowed up by the tentacles of the giant Pan American octopus."



Weight Saver Prop—

This new lightweight Hamilton Standard propeller now being installed by TWA on its fleet of DC-3s cuts 118 lbs. from the weight of each plane. The blades are of a higher strength aluminum alloy which permits use of a smaller blade shank, and consequently a smaller hub and dome. The small dome requires approximately one-half the amount of oil to perform a feathering operation, and tests show the new prop will feather in five to seven seconds. Due to improved governor design, the new prop also offers a greater degree of sensitivity in constant speed operation.



Airfreight to Mexico—Being unloaded for immediate store-door delivery is the first all-cargo shipment which American Airlines flew recently from the U. S. to Mexico City. Included in the 4,950 pounds of freight were supplies for the Mexican Army and film for the long-depleted movie industry of Mexico.

Snowbound **AIRPORTS** **ARE BAD** **PROPAGANDA**



It takes a long time to live down a prejudice. If potential air passengers learn from experience to discount the availability of good service after heavy snows, airlines stand to lose passengers two ways. First, through actual cancellations of flights. Second, through people jumping to the conclusion airports may be snow-bound.

Airports should assure fast snow clearance with adequate SNOGO equipment. And advertise the fact. This is the only way to remove a totally unnecessary prejudice against flying from the popular mind. After heavy or light snowfalls, SNOGOS remove the snow from the runways and the job is done until the next snowfall. No packed layer of snow is left to freeze into dangerous ruts or to freeze into wheel pants or be carried into wheel wells, no banks to blow back on the runways or endanger wing tips. Write for full information.



SNOGO

**A SNOGO For
EVERY BUDGET**

KLAUER MANUFACTURING COMPANY, Dubuque, Iowa



ATS Directors Meet on West Coast—In attendance at the recent meeting of the board of directors of the Aeronautical Training Society in Los Angeles were, left to right, Harry White, Pal Alto (Calif.) Airport; J. Wendell Coombs, ATS president; Beverly Howard, Hawthorne School of Aeronautics, Orangeburg, S. C.; Maj. C. C. Moseley, Cal-Aero Technical Institute, Glendale, Calif.; Maj. William F. Long, Dallas (Tex.) Aviation School; and Leland Hayward, Southwest Airways, Inc.

What a Difference

It was just 30 years ago that British airmen carried out their first bombing raid against German submarines. Five pilots of the Royal Naval Air Service were selected to raid the dockyards at Antwerp. Only two pilots reached the objective but some damage was done. They flew over the yards at a mere 1000 feet. The bombs weighed only 20 pounds each. During the present war British bombers have dropped as much as 10,300 tons on enemy targets in 24 hours.

Airline Mileage, Traffic, Revenue and Expense Statistics

The following tabulations are from preliminary reports issued by the Civil Aeronautics Board, as obtained from monthly Form 2780 reports from the domestic airlines to the CAB and from estimates when data are not available.

Final and authentic tabulations from Form 2780 reports, often not available until some months after the preliminary CAB reports, are published regularly by American Aviation Reports, American Bldg., Washington 4, D. C.

Because of space limitations, certain traffic and expense categories are not included in the following tables.

MILEAGE AND TRAFFIC FOR YEARS 1944 AND 1943

		MILEAGE					TRAFFIC					
		Scheduled Percentage	Miles Flown Number	Total Revenue Miles	Total Miles Flown	Revenue Passenger Miles	Revenue Passenger Load Factor	Average Revenue Passenger Load	Mail Pound-Miles	Express Pound-Miles		
All American	1944	89.93	1,210,437	1,212,089	1,258,333	.....	.....	.....	120,112,282	21,671,848
	1943	93.25	1,029,345	1,030,354	1,068,097	.....	.....	.....	64,858,923	20,351,733
American	1944	93.89	33,909,814	34,582,237	36,019,574	572,094,112	89.92	17.51	21,700,719,202	10,767,510,676		
	1943	95.24	26,154,393	26,397,687	26,960,204	435,913,741	88.18	16.76	16,290,924,740	9,764,229,681		
Braniff	1944	95.46	5,292,037	5,412,785	5,703,101	94,965,133	89.34	17.97	2,272,636,514	638,834,144		
	1943	94.41	4,020,363	4,045,254	4,239,815	66,520,573	91.75	16.44	2,175,175,465	703,613,330		
C. & S.	1944	91.61	2,871,472	2,882,381	2,948,403	40,242,103	82.55	17.06	943,480,867	461,043,226		
	1943	93.60	2,169,004	2,179,472	2,217,447	35,293,185	83.92	16.19	928,067,007	373,296,563		
Colonial	1944	92.94	1,006,118	1,056,116	1,101,945	17,387,268	78.90	16.46	99,434,121	78,880,820		
	1943	92.98	856,180	891,712	729,388	11,021,746	80.33	15.93	118,652,195	63,113,201		
Continental	1944	92.75	2,366,649	2,371,493	2,449,636	23,823,438	87.52	10.06	255,194,457	82,525,202		
	1943	92.73	1,543,385	1,543,385	1,571,852	14,873,461	86.30	9.75	225,229,953	40,258,838		
Delta	1944	95.13	3,488,988	3,499,726	3,538,337	65,745,906	90.72	18.79	2,077,413,211	351,923,300		
	1943	95.48	2,340,664	2,340,932	2,383,741	43,361,264	88.99	18.52	1,377,815,738	236,055,752		
Eastern	1944	Data not available	due to carrier's delinquency in filing form 2780 report for December 1944.									
	1943	96.75	13,169,206	13,210,943	13,415,651	215,352,713	87.32	17.41	8,711,853,910	2,760,485,818		
Hawaiian	1944	99.32	554,283	949,588	971,613	15,824,028	93.90	22.54	46,929,273	1,123,038,263		
	1943	99.92	511,013	909,800	995,099	15,322,772	93.62	22.44	50,887,783	959,710,705		
Inland	1944	89.90	1,228,923	1,229,119	1,269,170	7,610,081	68.34	7.94	81,035,544	11,565,861		
	1943	84.13	850,349	850,349	866,312	4,011,549	65.94	7.45	74,748,069	5,891,744		
Mid-Continent	1944	96.68	2,248,388	2,248,892	2,304,776	21,312,458	77.63	9.48	479,563,380	71,064,191		
	1943	94.54	1,494,549	1,494,549	1,561,922	10,775,481	62.42	8.00	272,755,367	43,360,732		
National	1944	95.76	3,336,235	3,363,894	3,464,929	40,337,997	87.64	11.99	750,200,550	143,351,563		
	1943	97.52	1,892,144	1,923,697	1,951,409	23,025,148	86.23	11.97	449,654,647	101,817,131		
Northeast	1944	83.67	1,014,691	1,023,806	1,068,328	12,847,261	59.43	12.62	66,884,002	26,064,823		
	1943	79.04	726,249	727,142	745,928	9,091,388	59.49	12.50	42,657,608	23,226,451		
Northwest	1944	96.20	7,355,159	7,405,477	7,523,146	120,311,413	84.42	16.42	4,892,415,501	1,234,279,753		
	1943	94.82	4,471,374	4,475,129	4,584,766	63,787,663	83.98	14.51	3,895,854,236	1,000,634,952		
PCA	1944	91.47	5,278,629	5,313,559	5,375,718	90,119,936	81.82	16.96	1,241,180,100	931,700,911		
	1943	95.10	3,093,689	3,097,469	3,133,948	52,312,234	81.20	16.89	1,002,599,018	790,491,458		
TWA	1944	92.75	20,890,037	21,589,536	22,611,927	347,841,327	91.65	17.57	18,868,115,765	7,066,035,739		
	1943	95.36	16,170,639	16,263,234	16,945,001	242,003,432	80.22	15.22	14,322,422,332	5,997,975,366		
United	1944	95.44	28,846,465	29,666,110	30,587,440	456,514,989	95.98	17.55	35,877,462,546	8,445,706,813		
	1943	97.78	21,396,537	21,955,194	22,395,280	357,196,623	92.10	16.80	21,169,321,285	7,931,779,115		
Western	1944	95.50	3,175,431	3,194,491	3,295,883	57,342,927	88.64	17.96	1,729,138,862	433,031,724		
	1943	94.52	1,997,828	2,037,028	2,135,705	32,589,240	84.65	15.84	870,421,258	443,467,901		
Total ¹	1944	94.24	140,627,486	143,651,680	148,391,131	2,253,113,339	89.43	16.96	101,550,752,975	35,247,677,503		
	1943	95.80	103,686,711	105,193,330	107,921,425	1,632,452,233	88.01	16.15	72,133,899,534	31,257,780,471		

¹ The total of all carriers for the 12 months ended Dec. 31, 1944, reflects data for the 12 months ended Nov. 30, 1944 for Eastern due to non-receipt of this carrier's Form 2780 report for Dec., 1944.

Eastern 12 months ended									
Nov. 30, 1944	95.47	18,551,730	16,640,390	16,896,863	259,792,872	86.80	17.43	10,048,836,178	3,349,850,806
Nov. 1944 adjusted total ²	94.90	136,876,603	139,684,006	144,287,960	2,194,751,115	89.66	17.01	99,264,235,677	34,768,334,875

² This total includes data for Eastern for Nov., 1944, which were not furnished by this carrier in time for the Nov. 1944 table.

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"A-Q" gears produced today for the exacting demands of aircraft engines will assure greater efficiency in machines planned for postwar



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Foote Bros. produces compact reduction units to meet special applications. This unit was designed for use with radar equipment.



This giant speed reducer 6 feet high is from the complete Foote Bros. line which includes a wide range of sizes and ratios to meet every application.

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Better Power Transmission Through Better Gears

A copy of this informative product engineering manual on "A-Q" gears will be sent to you on request when it is ready.

MILEAGE AND TRAFFIC FOR DEC., 1944 AND DEC., 1943

MILEAGE

TRAFFIC

		Scheduled Percentage	Miles Flown Number	Total Revenue Miles	Total Miles Flown	Revenue Passenger Miles	Revenue Passenger Load Factor	Average Revenue Passenger Load	Mail Pound-Miles	Express Pound-Miles
All American	1944	69.33	90,794	90,964	96,206	.....	.....	.....	8,021,588	1,271,019
	1943	90.30	83,308	83,508	88,485	.....	.....	.....	6,630,453	1,291,351
American	1944	84.00	3,179,208	3,303,840	3,391,926	52,306,496	87.73	16.90	1,764,978,573	1,147,666,162
	1943	90.08	2,192,534	2,206,118	2,259,263	34,019,146	87.93	16.15	1,637,862,597	885,028,012
Braniff	1944	92.93	539,335	563,134	592,539	9,252,316	80.56	16.43	210,927,995	74,835,979
	1943	87.06	344,382	350,006	367,152	5,577,169	90.62	15.93	217,885,259	55,090,039
C & S	1944	69.96	265,416	265,677	270,982	3,969,676	72.45	15.05	85,407,974	44,551,752
	1943	81.45	168,766	168,766	170,763	2,725,042	83.13	16.15	77,836,570	31,175,994
Colonial	1944	87.94	106,922	109,954	115,643	1,493,252	64.67	13.58	10,211,251	5,834,064
	1943	93.90	57,664	61,458	66,257	966,052	82.24	15.72	10,340,858	6,218,918
Continental	1944	90.39	231,681	232,489	237,407	2,322,245	80.38	9.99	25,318,737	8,729,536
	1943	88.32	125,890	125,890	130,686	1,080,880	79.57	8.50	17,933,763	2,558,068
Delta	1944	85.71	342,768	343,368	346,045	6,069,445	87.21	17.68	221,733,347	39,104,173
	1943	86.63	224,452	224,720	228,046	4,160,897	90.84	18.52	158,585,227	25,030,608
Eastern	1944	.....	.....	.....	.....	.....	.....	.....	.....	.....
	1943	92.11	1,070,470	1,089,517	1,118,665	17,774,989	88.15	17.41	872,049,783	263,170,673
Hawaiian	1944	98.55	46,642	86,497	88,459	1,421,720	93.00	22.32	5,345,636	110,445,526
	1943	99.07	45,972	78,296	84,843	1,227,393	92.76	22.26	5,584,531	103,275,786
Inland	1944	97.70	130,664	130,860	136,416	1,076,896	57.61	8.33	10,881,622	1,818,956
	1943	87.17	74,908	74,908	76,818	350,528	68.00	7.52	6,886,962	485,373
Mid-Continent	1944	93.04	195,759	195,759	214,165	1,704,495	76.58	8.71	45,620,175	8,459,489
	1943	97.24	175,742	175,742	179,000	1,341,083	59.92	7.63	42,273,712	4,501,331
National	1944	84.16	345,902	352,752	359,698	4,151,652	88.00	11.77	106,866,243	17,225,912
	1943	91.93	185,647	190,803	192,915	2,243,887	86.81	11.76	54,802,290	12,393,901
Northeast	1944	82.22	106,104	106,104	106,449	1,144,977	48.71	10.79	6,002,765	2,769,409
	1943	77.88	79,646	79,646	81,472	874,501	52.28	10.98	5,738,460	1,634,229
Northwest	1944	90.68	757,099	759,985	768,223	11,528,131	78.14	15.28	465,593,252	132,454,006
	1943	97.19	468,706	468,706	475,316	6,924,456	85.06	15.02	427,933,029	95,898,289
PCA	1944	74.24	519,523	528,916	538,348	7,614,831	71.16	14.40	97,871,006	78,603,875
	1943	93.59	291,567	291,753	293,784	4,854,268	79.82	16.64	119,427,024	82,006,386
TWA	1944	77.89	1,765,743	1,901,584	1,989,913	27,835,513	87.67	15.85	1,971,874,697	638,756,586
	1943	85.75	1,322,386	1,371,011	1,424,976	18,076,586	85.63	15.35	1,484,216,549	489,684,582
United	1944	90.11	2,745,721	2,810,248	2,883,977	38,983,432	94.52	16.64	3,606,786,918	726,982,351
	1943	98.06	1,983,037	2,055,618	2,110,207	31,736,216	93.64	16.94	2,296,771,104	755,262,207
Western	1944	97.48	384,639	387,721	391,900	6,606,504	87.97	17.06	292,282,113	37,967,547
	1943	90.63	190,198	192,790	200,833	2,991,316	79.67	15.52	81,497,908	46,915,674
Total ¹	1944	86.31	13,523,806	13,941,246	14,332,849	207,836,906	85.96	16.06	9,904,774,160	3,412,234,384
	1943	91.02	9,065,475	9,291,256	9,549,280	136,924,348	87.38	15.92	7,524,256,379	2,860,724,501

¹ The total of all carriers for Dec., 1944, reflects data for Nov., 1944, for Eastern due to nonreceipt of this carrier's Form 2780 for Dec., 1944.

² This total includes data for Eastern for Nov., 1944, which were not furnished by this carrier in time for the Nov., 1944, table.

Eastern, Nov., 1944	94.77	1,767,920	1,771,824	1,799,053	30,125,323	88.29	17.66	966,050,266	335,337,728
Nov. 1944 adjusted total ²	93.36	13,933,883	14,126,983	14,565,265	217,068,118	87.30	16.47	9,676,414,895	3,468,220,077

OPERATING REVENUE AND EXPENSE FOR NOV., 1944, AND NOV., 1943

OPERATING REVENUE

		Passenger	Mail	Express and Freight	All Other	Total	Total Operating Expense	Net Revenue from Operations
All American	1944	\$.....	\$50,144	\$ 804	\$ 451	\$ 51,390	\$ 56,618	\$ -5,219
	1943	.....	44,783	307	3,063	48,183	44,425	3,758
American	1944	2,800,190	660,615	230,881	53,260	3,753,955	2,770,122	983,833
	1943	1,889,195	445,078	162,799	48,771	2,545,837	1,975,475	570,362
Braniff	1944	492,001	54,478	20,568	7,352	574,399	489,519	84,880
	1943	327,066	53,661	15,837	7,627	404,211	317,369	86,842
C & S	1944	281,260	26,970	11,890	5,080	325,000	265,656	59,344
	1943	156,626	20,769	8,619	2,870	188,684	215,693	-27,009
Colonial	1944	82,796	9,768	4,283	2,463	99,310	110,516	-11,206
	1943	56,498	12,005	966	1,130	70,619	68,989	1,630
Continental	1944	106,610	50,171	1,832	1,610	162,023	180,092	-18,069
	1943	61,555	58,058	670	2,086	120,369	110,693	9,676
Delta	1944	341,565	64,007	6,873	7,896	420,341	267,223	153,118
	1943	218,519	41,615	6,429	3,566	270,129	200,218	69,911
Eastern	1944	1,590,272	269,915	92,251	24,820	1,967,158	1,245,592	751,566
	1943	991,058	240,904	71,165	29,800	1,332,927	904,562	428,345
Hawaiian	1944	108,247	797	30,893	9,396	149,323	116,894	32,429
	1943	91,896	877	28,248	1,322	122,343	100,476	21,867
Inland	1944	44,924	43,590	573	1,012	90,099	96,815	-6,716
	1943	17,017	27,754	.....	1,049	45,820	45,817	3
Mid-Continent	1944	92,616	80,399	2,176	1,286	176,477	186,718	-10,241
	1943	58,070	62,763	1,011	1,197	123,041	107,735	15,306
National	1944	229,357	27,076	-1,112	3,955	259,276	252,390	6,886
	1943	126,852	18,490	1,607	3,084	149,783	141,413	8,370
Northeast	1944	63,670	23,597	1,074	492	88,833	105,106	-16,275
	1943	43,557	22,803	700	2,046	69,109	88,376	-19,267
Northwest	1944	371,773	124,208	29,031	6,375	731,387	778,839	-47,452
	1943	300,115	100,596	20,435	1,145	460,291	407,441	52,850
PCA	1944	589,988	30,833	30,792	8,703	650,316	559,328	90,988
	1943	301,406	24,836	19,420	7,842	353,604	359,888	-6,284
TWA	1944	1,575,511	505,453	135,846	27,180	2,243,992	1,815,689	428,303
	1943	1,226,038	456,768	131,857	33,508	1,848,180	1,430,193	408,986
United	1944	1,927,249	978,824	208,819	45,867	3,160,759	2,231,792	928,967
	1943	1,533,236	681,530	169,633	42,892	2,427,291	1,942,772	484,519
Western Air	1944	288,232	71,078	4,013	10,530	373,853	333,068	40,785
	1943	160,839	24,463	7,245	8,201	200,748	225,250	-24,511
Total	1944	11,197,270	3,091,823	801,089	217,718	15,307,900	11,861,979	3,445,921
	1943	7,568,383	2,344,851	646,962	200,982	10,761,178	8,675,814	2,085,364

A PATENTED "ROCKING CHAIR"

BY J. FRED HENRY

Publisher of "Skyways" tells how Bell Aircraft developed a method for forming plastic cabin tops for military fighters that eliminates surface defects and improves visibility.



The patented "Rocking Chair" method was used to form the plastic cabin tops on these P-63 Kingcobras, shown here as they are being prepared for fly-away delivery to Russia over the Northern Route.

"BELL AIRCRAFT has made an impressive record in developing new methods—not only for improving the fighting performance of our war planes but also for developing many innovations which have greatly speeded up production. One outstanding example is Bell Aircraft's patented machine for molding its transparent plastic cabin tops and canopies.

"Before 1940, these cabin tops and hatches were made by manual methods, too slow for the tempo of scheduled war production. Four men had to pull a sheet of hot plastic over a cotton covered form. It took time, and impressions from the cloth sometimes

appeared in the canopy, impairing clear vision.

"One day it was discovered that if there was controlled, constant movement between the plastic sheet and the mold form, many of these defects could be eliminated.

"Utilizing this principle, Bell Aircraft engineers invented, and patented, a stretch-forming machine which keeps the hot rubbery thermoplastic in constant motion—rocking the form until the sheet of material has reached its proper contour and cooled to its final shape.

"This ingenious mechanical 'rocking chair' turns out plastic cabin tops

which are not only accurate in form but also of greatly improved optic quality. By the patented Bell Aircraft method a finished clear top comes off the 'stretcher' every seven minutes and two girls are the sole operators.

"They say that necessity is the mother of invention. During this war, Bell engineers have developed many other time and labor-saving ideas which, like the patented 'rocking chair' have helped advance aeronautical science by decades, making possible improved manufacturing methods not only for war but for peacetime production as well."

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MEMBER AIRCRAFT WAR PRODUCTION COUNCIL...EAST COAST, INC.

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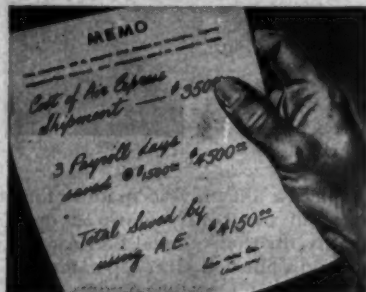
Marietta, Ga.

B-29 Boeing Designed Superfortress

Air Express Gains 3 Days, Saves \$4,150



A PLANT in California faces a shut-down for want of critical equipment made in New Jersey. Figuring a loss of \$1,500 for every day his plant is idle, the president picks up a phone and orders the equipment sent Air Express, even though the shipment is sizeable. (When time means money, Air Express pays—always!)



THE COST? Higher, yes. But by air, coast-to-coast delivery is made overnight—rather than in 3 or more days by other means. Air Express cost, by the way, includes special pick-up and delivery.



WOULDN'T YOU pay more to save a whole lot more? That's why thousands of manufacturers use Air Express as a matter of routine. Heavy or light, large or small, if shipment fits in a plane, it can go Air Express.

Specify Air Express — Low Cost for High Speed

25 lbs., for instance, travels more than 500 miles for \$4.38, more than 1,000 miles for \$8.75, more than 2,000 miles for \$17.50, at a speed of three miles a minute—with cost including special pick-up and delivery in all U.S. cities and principal towns. (Often same-day delivery between airport towns and cities.) Direct service to scores of foreign countries. Rapid air-rail service to 23,000 off-airline points in the United States.



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Web Litter Suspension Aids Flying Ambulances

A new method of litter suspension devised by Fairchild engineers to make the C-82 Packet an efficient ambulance plane as well as cargo carrier now is being used as well in the Army's C-46 Commando, C-47 Skytrain and C-54 Sky-master.

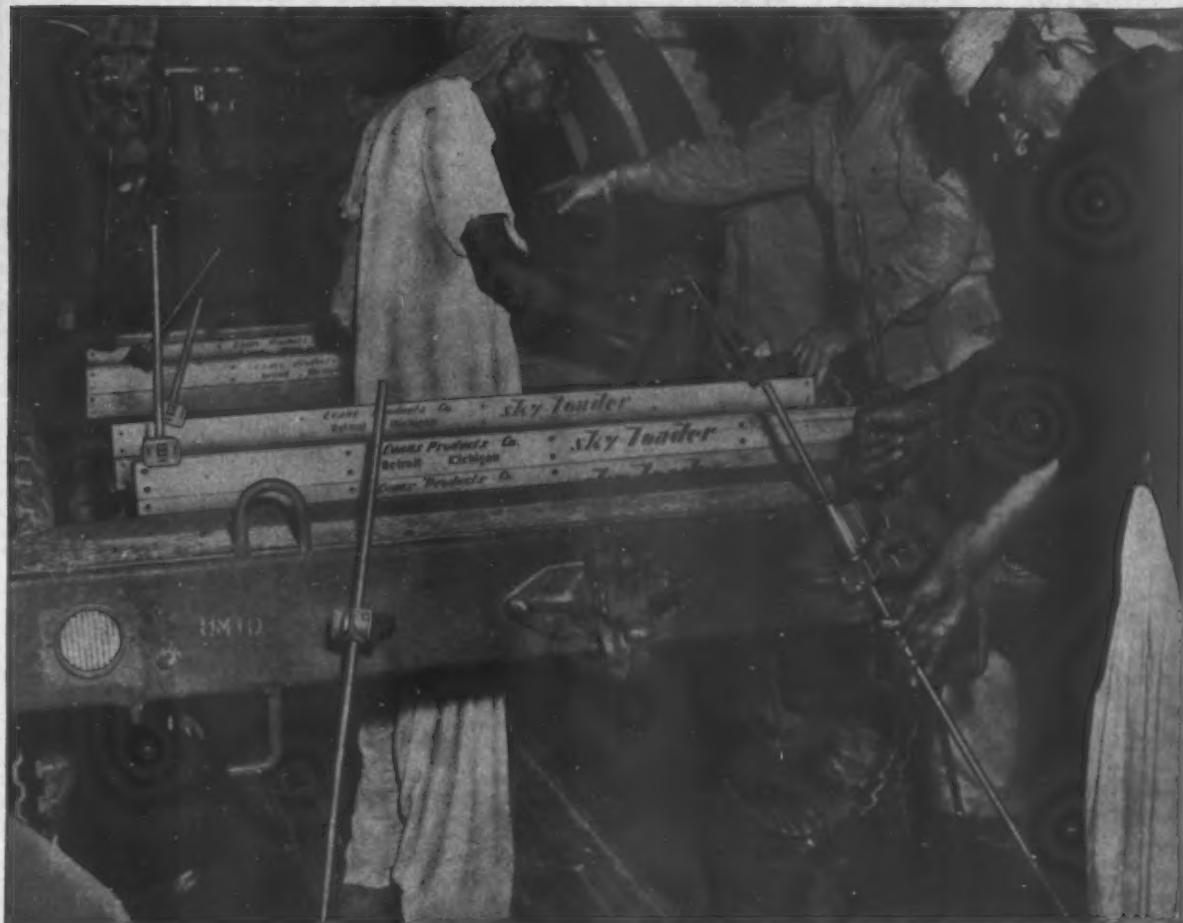
The new method employs flexible, cloth-webbing straps suspended from the ceiling and hooked to cargo tie-down fittings in the floor in place of the rigid metal supports formerly used. The result is a weight saving of more than three pounds per litter and a considerable space saving both when the equipment is in use and when it is stowed.

Other advantages claimed for strap suspension are that it permits loading of each tier from the top down, that nearly all metal has been eliminated and with it the danger of a soldier hurting himself by striking a hard surface, and that the straps absorb some of the shocks. Strap suspension equipment can be set up ready for use in less than two minutes and is much cheaper to produce than metal supports.

In the Packet, there are provisions for 34 strap-supported litters. At regular intervals within the length of the web straps are loops into which the litter handles fasten and a clamp attachment to tighten the loop around the handle. All of the litters extend out from the walls of the cargo compartment and are held in place against the walls by wall brackets which are the same distance from the floor as the corresponding loops in the straps. The entire installation is permanent with the plane, and when not in use the straps can be unhooked from the floor and rolled up into stowage bags on the ceiling near the upper support.



Packet Ambulance—Shown here is the new Fairchild method of strap suspension of litters installed in the C-82 Packet. There are five litters in a tier. Straps weigh less than half as much as metal supports and can be rolled up into ceiling stowage bags when not in use.



OFFICIAL U. S. A. F. PHOTOGRAPH, INDIA-CHINA DIVISION, AIR TRANSPORT COMMAND

Teaching Natives New Tricks

This sergeant's job in India is to secure cargo in Army Transport planes. He uses Evans Sky Loader equipment, which is so simple in operation that he easily teaches its application to inexperienced natives.

To every fighting front cargo planes equipped with Evans Sky Loader carry vital war supplies . . . carry them safely and undamaged and, regardless of size or weight, without risk to the plane. In the picture a truck chassis is being secured with Evans rods and beams.

Since 1915, Evans engineers have specialized in loading equipment for all types of transportation on land and air. They look ahead confidently to new developments in these cargo carriers of the sky and will be ready when peace comes to supply

effective tie-down equipment, Sky seats and other Sky products for gliders and powered planes of every size and shape.

The services of Evans loading engineers are always available to airplane manufacturers and airline operators in the solution of loading problems.

★ ★ ★

Vision to Anticipate the Needs of Tomorrow
Creates New Industries Today

E. Evans
PRESIDENT

SKY PRODUCTS DIVISION



**EVANS PRODUCTS
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Evans War Products: Machine Gun Mounts • Tank and Automotive Heating and Ventilating Equipment • Evacair Water Heaters • Aircraft Engine Mounts • Airplane Landing Gear Booms • Battery Separators • Prefabricated Homes • Plywood • Skyloader • Utility Loader • Auto-Loader • Auto-Railer • Auto-Stap • Stampings • Evancor Domestic Heating Equipment

Primary Training Plane Disposal by Government Urged by ATS Directors

The Aeronautical Training Society at its annual directors' meeting recently in Los Angeles went on record favoring Government disposal of surplus primary training planes through regular trade channels, with the Government providing for quantity sale of such equipment in lot purchases.

A second recommendation urged the Government to permit privately owned and operated ground and technical schools to receive surplus planes for instruction purposes on a nominal rental fee basis.

An initial draft covering standards of civilian flight training for all Aeronautical Training Society schools was studied by the directors and the final draft is expected shortly from the standards committee headed by Cody Laird, Southeastern Air Service. Serving with him in drawing up the program are Capt. Maxwell W. Balfour, Spartan School of Aeronautics, and Maj. C. C. Moseley, Cal-Aero Technical Institute.

The directors also recommended continuation of the ATS wartime training policies, foregoing any action at the present on modifying the group's charter provisions.

High School Aviation Fund

The Tennessee Bureau of Aeronautics is making funds available to help finance a program of flight experience for high school aviation students. The flight experience will be on a co-operative basis with the student paying part of the cost.

Lightplane Priority Procedures Set Up by WPB's Air Division

THE War Production Board's Aircraft Division has established procedures for obtaining priorities on new lightplanes whenever any shall be manufactured. All persons interested in purchasing a light plane should file Form WPB-1319 with the Aircraft Division making clear the type plane desired and the use to which it will be put.

"This does not mean you can expect delivery within 30 or 60 days," however officials warned. If all persons who want to buy a plane file the form with WPB, it will give the Aircraft Division an accurate picture of the demand and of the number of lightplanes needed for essential uses. The forms will be screened and rated according to the degree of essentiality. At such time as facilities are available for the manufacture of lightplanes, WPB officials will have a record of how many of each type plane will fill an essential need and

priority will be given to those who have filed purchase requests.

It is believed that it may be possible at some time to tie in this production for essential civilian needs with WPB's spot authorization procedure which permits limited production for civilian uses in plants whose facilities are not being completely used in war production in areas where manpower is available or in plants with a 30 to 60 day gap between war contracts where it is considered impractical to release manpower.

Officials pointed out that in cases of extremely critical necessity, it might be possible to obtain light aircraft more rapidly. Some of the uses for light aircraft considered most essential by the Aircraft Division are forest fire fighting, crop dusting and travel by executives connected with war production.

Flight Training at Key West Coast Cities Still Hard Hit Despite Relaxing of Rules

PRIVATE FLYERS and operators are threading their way through the new regulations for civil aircraft as issued by the Western Defense Command. There is some improvement, but flight training provisions under the proclamation are disappointing to many.

Through restricting areas around the coast's key cities, San Diego, Los Angeles, San Francisco, Portland and Seattle, operators in the big centers are hardest hit.

A proposal to the Defense Command for use of auxiliary fields outside the restricted areas, whereby flight instructors would fly training planes to the auxiliary fields in the morning and return at night, carrying out training during the day, was turned down.

As it now stands, the following fields within California's Western Restricted Flying Zone may carry out point-to-point flying when in the interest of the war effort but may not conduct civil flight training: Belmont; Buena Park; Lockheed Air Terminal; Central Airport, Compton; Compton Airport, Compton; Sherman Field, Concord; Culver City Airport; Fullerton Municipal, Fullerton; Grand Central Air Terminal, Glendale; Vail Field, Los Angeles; San Carlos Airport; Gibbs Field and La Pressa in San Diego; and San Mateo.

The following within the restricted flying zone, but outside the restricted areas for flight training as outlined by the Defense Command, may conduct training as well as point-to-point flying: Alhambra; Brawley; Carmel Valley, Carmel; Patrick Field, Chico; Corcoran; Corning; Imperial County Airport, El Centro; Chandler Field and Furlong Field, Fresno; Monrovia; Henderson Field, Ojai; Brackett and Pomona Fields, Pomona; Arlington and Riverside Fields, Riverside; Rosemead; San Bernardino and Tri City Airports, San Bernardino; San Fernando; Reid-Hillview, San Jose; Hancock Field, Santa Maria; Santa Paula; Santa Susana.

The lines of demarcation around the cities in several instances has the net result of permitting one field to advertise for flight training while another field in the same close proximity cannot conduct such operations. Despite such inequalities, there still is some hope that the Army will further ease its rulings, once they are convinced pilots and operators are co-operating under the new ruling and not taking advantage of the slight relaxation.



Girls Take to Air—The Alabama Institute of Aeronautics Flight School for Young Women at Tuscaloosa is in full swing, with a second class to open April 2. Oliver L. Parks, president, makes clear that the girls will be taught the "wisdom of flight," but training will not be offered girls for advanced commercial pilot ratings which might place them in competition with returning veterans. Shown here is the school and its 250-acre flying field. The girls in the lower photo are studying an instrument panel in one of the laboratories.

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The Associate Base Plan of Southeastern Air Service is a cooperative arrangement under which Southeastern extends an opportunity to local independent operators for conducting their individual operations in affiliation with the company. Agreements are made with qualified operators so they may enjoy the advantage accruing from the cooperative organization and from their access to the experience, service and facilities of Southeastern Air Service. They are enabled thereby to offer local customers the same high standards of instruction, sales, service and maintenance which Southeastern itself offers. Financing and insurance are available at lower cost than

would be available to an operator going into business on his own.

A number of these Associate Bases have been established in the Carolinas and Georgia. There are still several localities open for alert airmen who wish to get into business in this territory.

Southeastern is distributor for the lines of airplanes you will want to sell. These will be available to you as an Associate Base Operator.

★ ★ ★

Write now for details of the Associate Base Plan.



SOUTHEASTERN AIR SERVICE, INC.

Executive Offices: Healey Building (P. O. Box 4116) Atlanta 2, Ga.

Takeoff Channels or Special Fields May Be Advisable for Helicopters

TRAFFIC REGULATIONS for helicopters present a "real problem," Charles I. Stanton, Civil Aeronautics Administration deputy administrator, declared in an address last fortnight. He said it will not be easy for the CAA to insure safety to both helicopter and fixed wing pilots in the crowded air without imposing any nuisance restrictions on either.

Speaking before the fifth semitechnical meeting of the American Helicopter Society at Bridgeport, Conn., Stanton asserted that up to the present "no specific airworthiness standards have been prescribed for such rotating wing aircraft as have been manufactured."

He said that specific requirements for helicopters have been discussed at meetings of the CAA Aircraft Engineering Division and representatives of the helicopter manufacturers, and that final draft of CAA's recommendations for these requirements is being drawn up for presentation to the Civil Aeronautics Board.

"Like other aircraft, helicopters will be required to have such performance and flight characteristics as to provide reasonable safety during the execution of any maneuver necessary for flight, and during steady flight at any weight, center of gravity position, speed and power within the ranges for which the aircraft is certificated."

With respect to traffic regulations, Stanton said "we might weigh properly the ability of the helicopter to crawl along at slow speed under the lowest ceilings, and the helicopter must not be kept out of operation by restrictive rules in weather which may ground other types of aircraft, but in which the flying windmill can operate safely."

"On the other hand, this slow, and low flying helicopter must not present a collision hazard to aircraft in the process of instrument approach or takeoff, both of which will be made safely in the very near future thanks to many new radio developments.

"The answer may come in approaches and takeoffs through channels or at specific fields . . . We must also consider the probability that helicopters may not be greatly interested in airports as we know them now, unless they are larger models on scheduled feeder lines, or other commercial runs."

Stanton said that the CAA now has only one helicopter pilot on its staff. He is Lynn Probst, who recently completed training at the Coast Guard Station, Floyd Bennet Field. He said CAA has obtained a helicopter from the Coast Guard and that Probst will conduct further experiments and train additional CAA pilots at Washington National Airport.

Specifications of 'Chum'

Specifications of the new Aeronca two-place, two-control, spinproof, low-wing "Chum," which made its debut in the March 1 American Aviation, are:

Wing Span—29 ft.
Wing Area—140 sq. ft.
Wing Loading—9.3 lbs. per sq. ft.
Power Plant—75 hp.
Gross Weight—1300 lbs.
Weight Empty—710 lbs.
Useful Load—590 lbs.
Fuel Capacity—23 gals.
Cruising Range—470 miles
Top Speed—120 mph.
Cruising Speed—106 mph.
Landing Speed—50 mph.
Rate of Climb—650 ft. per min.
Baggage Capacity—70 lbs.

Aircraft Cables Used By Northrop to Help Crippled War Veterans

Branching out from the aeronautical field, Northrop Aircraft Inc. has developed a new efficient and inexpensive method of actuating the hooks which replace the lost hands of disabled service men, and already has delivered 2000 of these devices to the Army and 500 to the Navy.

The Northrop Control replaces the leather or rawhide thongs running through leather or brass clips of the old-style control with a stainless steel flexible aircraft cable in a stainless steel flexible housing. The new unit transmits 80 per cent of the applied force delivered by the opposite shoulder as against about 20 per cent for previous types.

In addition to the new control, Northrop engineers are working on a new wrist joint permitting direct rotary control of the amputee's hook; light plastic sockets that would reduce the time of individual fittings; an improved elbow joint for upper arm amputees; a durable, sanitary unit in plastics and light metal to replace existing leather, wood, steel and bronze artificial arms; and a method for using body motions other than the shoulder to operate the artificial limb.

All improvements which result from Project 17, as the development program is called, will be turned over to the Government.

Johnson Plane Gets CAA Tests

The three-place Johnson Rocket 185 has been successfully test-flown and is now undergoing Civil Aeronautics Administration flight tests preparatory to being certificated, Rocket Aircraft Sales Co., national distributors, announced recently. At the same time the company stated that contracts are being made with war plants now manufacturing parts for war planes to produce parts for the Rocket as soon as the war program ends, and that the company is constructing another addition to its assembly building so as to be ready to go into production as soon as the War Production Board permits.



More Seats

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New Douglas Airliners Allocated Mid-Continent by the Civil Aeronautics Board and Army Air Forces mean more seats, better service for essential travel. **DEPEND on arriving FIRST and REFRESHED.**

Frequent service to

KANSAS CITY	OMAHA
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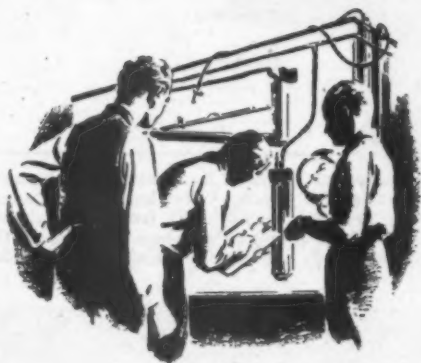
Mid-Continent Airlines

Over Nature's Flyway

THE SHORT-CUT NORTH AND SOUTH

A preview of Peacetime Flight

The C-97 Boeing cargo plane that crossed the continent in six hours forecasts a new kind of air travel. For this plane will be known as the "Boeing Stratocruiser" in a commercial postwar model, flying its faster, smoother course in the sub-stratosphere. Pressurized cabins make such flight possible—AiResearch's job has been to develop the cabin-pressure controls.



First, "weather" had to be created: air conditions in all parts of the globe and thousands of feet above it were manufactured to order. Then, in temperatures as low as minus 90° F, the reactions of crew and equipment could be studied through each step of engineering the controls.



Next, countless hours in the "Stratolab"—the giant vacuum chamber built for research on high-altitude flying. Here, in pressures as low as those found at 65,000 feet above sea level, the problems of comfort-protecting airplane cabins during sub-stratosphere flight were solved.

Yes, there's a new kind of air travel coming! And AiResearch is helping to create it now with research, engineering and precision manufacture. AiResearch Manufacturing Company, Los Angeles and Phoenix.



"Where Controlled Air Does the Job" Automatic Exit Flap Control Systems • Temperature Control Systems • Engine Air Intercooling Systems • Cabin Pressure Regulating Systems • Supercharger After-cooling Systems • Engine Oil Cooling Systems

AiResearch

DIVISION OF

THE GARRETT CORPORATION

Douglas Designs Hangar and Shop for DC-7

Building, Together With Overhaul and Other Facilities, Will Cost \$373,220; Alternate Plan Drawn Up for DC-4s

By SYDNEY CARTER

IN RESPONSE to requests from domestic airlines and several foreign countries interested in the DC-7 transport, the Douglas Aircraft Co. is presenting detailed plans and specifications for a typical hangar and shop building to house one of these transports or two DC-4s and, in addition, provide space for general offices, a flight facilities office, a lunch room, and overhaul and maintenance departments.

The DC-7 hangar is of steel and brick construction and should cost approximately \$373,220 to build and equip in average normal times, the company reports. Plans also have been drawn up for a similar but smaller hangar to house one DC-4, one DC-6, or two DC-3 planes which could be erected and equipped for \$320,518.

The unit for the DC-7, as proposed by Douglas, will be a one-story steel frame structure, 260 feet long by 150 feet wide, having a total floor area of 39,000 square feet, including the lean-to areas on three sides of the building. Mezzanines over the office and shop space on each side of the lean-to structures will provide additional area. The plans are flexible and permit construction of the various units individually. Thus, it would be possible for an operator with adequate shop, office and lunch room space to limit his initial investment to the main hangar and add the lean-tos and mezzanines at some later date as the need arises.

The building will be constructed of steel columns, steel girders, steel trusses, steel purlins and a steel roof deck. Side

walls will be of brick with large areas of steel window sash to provide maximum daylight. At the top, side walls are of corrugated iron. Hangar doors are of the side rolling type, and are opened and

closed by means of manually-operated cranks. The hangar has a clear ceiling height of 35 feet which slopes up to 50 feet in the bay adjacent to the doors to provide clearance for the rudder and ver-

Estimated Cost Breakdown of Douglas Service Hangars

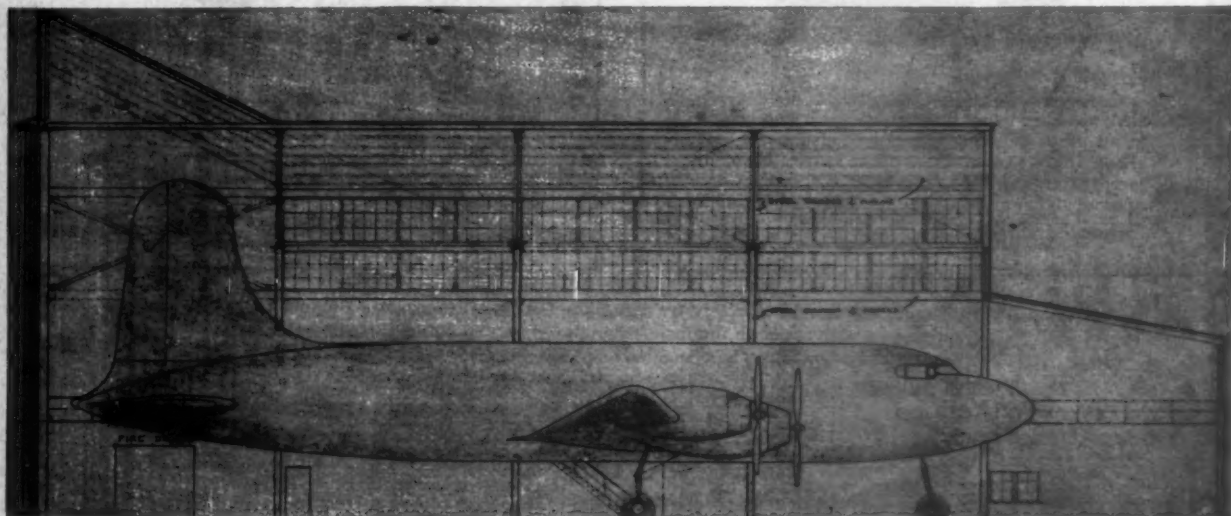
(Based on prices in average normal times)

DC-7 TYPE:

Building	\$163,511
Building Installations (not mech.)	
Electrical	19,200
Plumbing	6,000
Heating	19,200
Total	\$207,911
Machinery and Equipment	
Shop Equipment	\$101,475
Office and Cafeteria Equipment	14,205
Automotive Equipment	15,700
Total	\$131,380
Sub-Total	\$339,291
Contingency 10%	33,929
Grand Total	\$373,220

DC-4 TYPE:

Building complete with wiring, plumbing and heating	\$160,000
Equipment as in DC-7 type	\$131,380
Sub-Total	\$291,380
Contingency 10%	29,138
Grand Total	\$320,518



DC-7 Housing Project—This is side elevation of the new hangar unit for maintenance of DC-7 transports designed by Douglas Aircraft. The new unit is tailor-made for the DC-7 with provision being made for the nose to extend into the rear lean-to, and the roof slanted from 35 to 50 ft. near the doors to accommodate the rudder and vertical stabilizer. The same unit will house two DC-4 airliners.



AV-16

Announcing the New
ELECTRIC MOTOR VALVE
BY GENERAL CONTROLS

A new electric motor-operated, non-current failure shut-off valve, for fuel, hydraulic and lubricating oil systems. An exclusive design and development by General Controls.

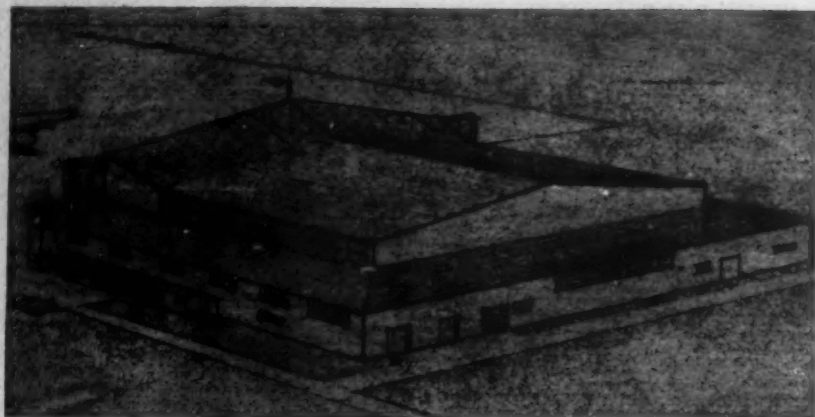
*Light Weight • Compact Size • Tight Shut-Off • High Flows
 With Low Pressure Drop • Low Current Consumption*

Equipped with explosion-proof motor and switch cover, standard Army-Navy or terminal type electrical connection. I.P.S., AN or AC tube and flange fluid connections $\frac{3}{8}$ " to 3" furnished. Engineering data will be furnished to authorized users upon request.

Phone, wire or write factory or contact your nearest factory branch office


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Service Hangar—Artists conception of the new hangar and maintenance unit designed by Douglas Aircraft engineers to facilitate servicing and maintenance of its forth-coming DC-7 airliner is shown here. A similar but somewhat smaller structure has been designed for the DC-4.

tical stabilizer.

An incandescent-type lighting system will provide a general illumination level of approximately 25 foot-candles. A simple type of heating system utilizing unit heaters and fuel oil may be provided.

Proposed equipment for the DC-7 hangar will permit all types of overhauls and all normal repair jobs. This includes complete engine and propeller servicing equipment, a small machine shop with general purpose tools, sheet metal equipment, hydraulic testing devices, landing gear repair and handling facilities, electrical test benches, and even portable scales for weighing the plane.

How completely the hangar has been tailored for the specific plane is particularly evident in the three-view drawings prepared by Douglas. From these it can be seen that the nose extends into the lean-to at the rear of the building, while the 13-foot high mezzanine is low enough so that the wing-tips pass over it, and it can be used as a working platform for tip repair and maintenance.

The alternate hangar for housing one DC-4, one DC-6 or two DC-3 planes has a similar floor plan to the DC-7 structure, but is of reduced size. Its overall dimensions are 235 feet wide by 120 feet deep, and the main hangar floor is 90 feet deep with a 175-foot clear span. Floor area of the main floor is 23,200 square feet and of the mezzanine 7,950 square feet for a total of 36,150 square feet. Since equipment requirements are approximately the same for the DC-7, DC-6 and DC-4, there would be little or no difference between the two structures in this respect.

CAA Lists Engine Rules

Five arrangements by which two engines can be used to drive a single propeller in aircraft of the future are listed in Safety Regulation Release No. 169 of the Civil Aeronautics Administration. Four of the methods are approved as the equivalent of a conventional twin-engine installation provided prescribed testing procedures are followed, but the fifth, in which the two engines have a common crankcase is listed as non-acceptable.

Position Indicator's Limitations to Affect Postwar Airline Use

The Army Air Forces' new Air Position Indicator, described in the March 1 issue of *American Aviation*, is not intended to replace the navigator, according to Capt. Arthur Wahl, Equipment Laboratory, Engineering Division, Air Technical Service Command.

In a paper prepared for the Institute of the Aeronautical Sciences, Capt. Wahl revealed further details of the new instrument and its operation, and at the same time pointed out several limitations that will greatly affect its application to postwar airline use.

The primary purpose of the API today, he stated, is to be an aid to the navigator, to do his job of dead reckoning for him when his other means become impossible as during evasive action, to carry on for him over limited periods when he must leave his work to do other jobs such as operate guns, and to perform other functions such as keeping account of distance traveled between celestial shots, determining winds and aiding in computing gasoline consumption and range. The API also can be used on long straight flights, but is not necessary because of the simplicity in performing such a task with the normal elementary instruments.

Basically what the API does, he revealed, is to combine the rotational speed of the true airspeed pump with the directional signal from the compass and produce continuous indication of the air plot in latitude and longitude. The navigator must properly apply the wind vector, which can be determined by any external means available, to this air position to obtain ground position. In using the API, the counters must be set to the proper latitude and longitude before take-off. Magnetic north variation must be set manually a degree at a time as the flight progresses so that the compass input reference is true north for resolution into geographic coordinates.

Another limitation of the present instrument reported by Capt. Wahl arises from the convergence of the meridians of longitude. For example, at the equator a nautical mile is one minute of longitude, but at 60 degrees latitude it is two minutes of longitude. The computer automatically compensates for this convergence, but for mechanical reasons the range of operation is to 80 degrees latitude, and even in future refinements it is obvious that the system must break down somewhere because near the poles the longitude counter would approach an infinite speed of rotation. Translated into terms of prospective airline use, this report would seem to indicate that the place where the API would definitely not function is on transpolar routes, and yet it would be on such routes that it would be of the greatest value because of the difficulty of establishing and maintaining radio ranges and other navigational aids in the arctic and antarctic wastes.

Another point stressed by Capt. Wahl which undoubtedly will affect its airline use is the fact that the API not only requires proper installation and calibration before it can give satisfactory results, but also requires considerable care, attention and knowledge of how to operate it on the part of the navigator before it does give satisfactory results. He states that it can never be classed among the elementary instruments which require no attention on the part of the operator and need only be glanced at from time to time to obtain a proper reading. Whether its usefulness on a commercial air route would warrant the expense and time involved in training of navigators in its use is still another problem which must be worked out before any definite conclusions as to the postwar commercial utility of the API can be formed.



Drain Pan on Stilts—

This elevated drain pan devised by airport employees of The Glenn L. Martin Co. extends under the entire nacelle permitting mechanics to work on any part of the engine with the assurance that all oil will be caught. The engine height of the pan eliminates splashing, while a petcock permits wheeling the drainpan over a stationary drum rather than always having to have a drum under the drainpan.

Corsairs on the Carriers



Long recognized as the Navy's fastest airplane, Vought Corsair fighters are daily being flown into combat from the decks of American and British aircraft carriers.

"Ruggedness, speed, firepower and range combine to make the Corsair more than a match for anything the enemy can offer."

CHANCE VOUGHT AIRCRAFT

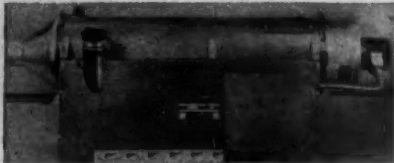
STRATFORD, CONNECTICUT

ONE OF THE FOUR DIVISIONS OF UNITED AIRCRAFT CORPORATION

New Equipment

Portable 38-Pound Heater

Surface Combustion, Toledo, Ohio, has announced a new portable Janitrol aircraft heater which weighs less than 38 pounds and has a heat output of 40,000 btu, which more closely approaches 125,000 btu because it takes air for operation from the cabin rather than having to raise the temperature



of colder outside ram air. The fact that no outside air is needed is said to make the new unit especially suitable for helicopters. It is now being used for heating cargo planes which are being used as hospital ships. A 3½-gallon fuel tank is built into the unit and is sufficient for 8 hours' continuous operation. The unit also has its own fuel pump driven by a small motor and a circulating air fan driven by a ¼-horsepower, 24-volt motor.

Lithographed Training Device

A lithographed cardboard device designed by the Bureau of Aeronautics to instruct aerology students is now being produced commercially by Hinson-Freeman Co., Starr & Borden Ave., Long Island City 1, N. Y. It is a three dimensional weather map which shows cloud formations on upright strips over enlarged sections, making it instantly clear how to read the various phenomena which the pilot is likely to encounter from a weather map. The trainers are being offered in sets of three at \$3.75 per set.

Carburetor Float Stand

A carburetor float stand designed to check the float level and needle and seat of aircraft float type carburetors known as the AMSCO Model A 801 has been announced by Airplane Manufacturing & Supply Corp., 6853 Lankershim Blvd., N. Hollywood, Calif. It is of sheet metal construction 39 inches high, 24 inches wide and 16 inches deep, weighs 80 pounds, and has a

built-in hand pump to give pressures needed for the flow of fuel, and an aircraft type pressure gage. The carburetor mounting bracket is designed to facilitate quick leveling of the carburetor.

Scott Introduces Chemicals

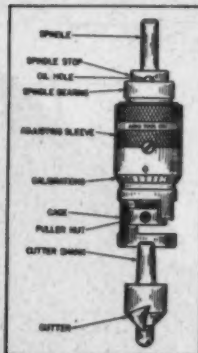
A complete line of aviation chemicals has been introduced by Scott Aviation Corp., Lancaster, N. Y. Included are windshield cleaner, film remover, brilliant polish, metal cleaner and polish, liquid wax, rainproof wax, dope rub, aircraft cleaner, motor tune-up, gasket shellac, thermo-plastic gasket sealer, degreaser, and skin cote.

Degreasing and Cleaning Unit

A new Hy-pressure degreasing and cleaning unit is available from Hydra Leotric Corp., which combines portability with a hot water-borne grease emulsifying solution delivered at high pressure. The unit consists of a 24-gallon tank for the concentrated cleaning solution, a 34-gallon pre-soak solution tank, and a motor driven impeller pump. It is also manufactured as a self-contained, oil-fired machine for use where hot water or steam are unavailable.

Simplified Countersink

Aero Tool Co., Burbank, Calif., has redesigned and simplified its Micrometer Stop



these changes have so reduced breakdown of the tool that it is now offering a free factory reconditioning service, charging only for parts used and postage.

Countersink. In the new design the conventional split keeper is eliminated, and an oversize phosphor-bronze radial bearing has been added with a simplified puller-nut which overcomes the necessity of using a screwdriver and permits removal of the cutter by a simple turn of the finger tips. Frictional heat is reduced to a minimum by the bronze bearing. The company states that

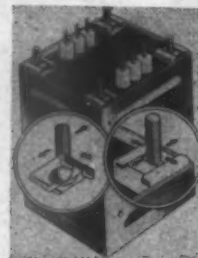


"Printing" Plane Parts—

Small parts for Avenger torpedo planes are cut out on a converted printing press at the Baltimore plant of Eastern Aircraft Division, General Motors Corp. Twice as many parts per hour are turned out as with the more orthodox blank and die press, and eight to ten times as many as with a router. In addition, cost of a rule die for the new press is only three percent that of a blank and pierce die and 10 percent that of a router template. Maximum size of parts that can be "printed" is one and one-half by two inches.

Transformer with Detachable Studs

A transformer with self-aligning, detachable mounting studs is now being produced by Electronic Components Co., 423 N. West-



ern Ave., Los Angeles. A simple clip arrangement, stamped from heavy gage cadmium-plated steel prevents the stud from turning while permitting centering in two directions. This feature allows over ¼ inch tolerance in mounting dimension and is said to eliminate rejects

due to bad threads, leaks around studs, bent or broken studs or changes in length specifications. The transformer with the new mounting is available in 15 standard case sizes.

Portable 30-Watt Amplifier

Walker-Jimieson, Inc., 311 S. Western Ave., Chicago 12, has a new 30-watt, 110-volt, 60 cycle AC amplifier with three input channels, high impedance input, universal output, tone control, speaker selector, protected fuse, heavy duty components, and carrying handle. It measures only 17 by 10½ by 19½ inches.

Drills with One-Piece Housings

A new line of drills with one-piece aluminum housings has been announced by The Aero Equipment Corp., Bryan, O. Other features include built-in oilers, 4-bladed rotors, hardened and ground cylinders, 4-ball bearing construction, and precision cut gears and gear cages.

Propeller Pitch Setters

Two propeller pitch setters which can be operated by one man and make it possible for the local service operator to straighten and repitch propellers in his own shop have been announced by Northwest Air Service, Boeing Field, Seattle. One is for blades up to 9¼ inches and the other for blades up to 12½ inches wide.

Retractable Ventilator

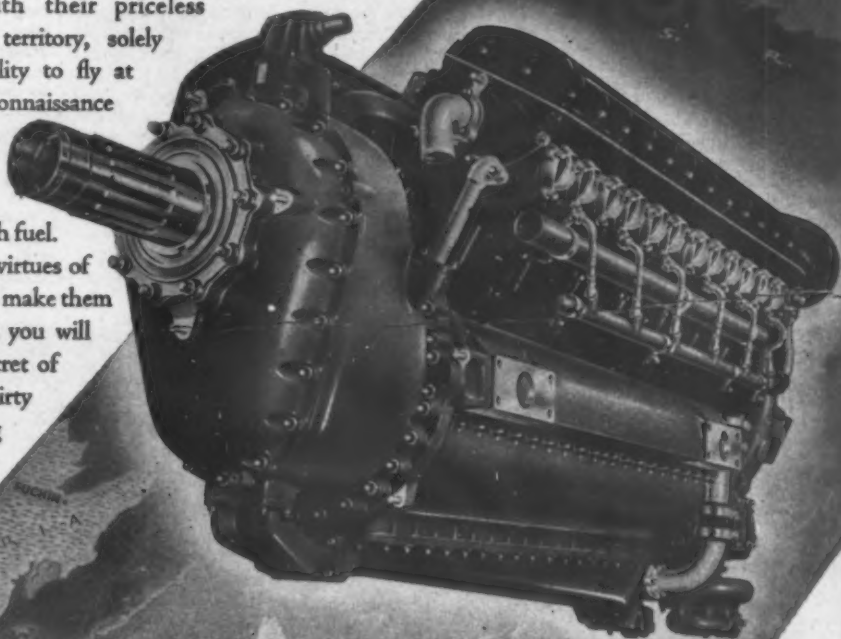
An improved aircraft cabin ventilator has been announced by the Snapvent Co., 1107 W. Cumberland Ave., Knoxville, Tenn. It



consists of two parts and is molded of a transparent plastic material. The setting can be rotated for either intake of fresh air or the exhaust of cabin air, and it can be adjusted for the amount of ventilation desired. The ventilator can be instantly removed to provide a 3¼ inch opening, standard size for gunports on Army transports and cargo ships. Present production is limited to military aircraft, but it will later be made available for private planes.

TO GET A "STAR'S-EYE" VIEW

High up where their Allison engines leave long vapor trails, P-38 Lightnings pursue dangerous photographic missions. Stripped of their guns, these planes get back with their priceless "star's-eye" view of enemy territory, solely through their speed and ability to fly at extremely high altitudes. ★ Reconnaissance pilots, like fighter pilots, know how dependable Allison engines are — how smooth — how slim and how saving with fuel. They appreciate all the special virtues of these engines — virtues that will make them equally valuable in the planes you will enjoy after the war. ★ The secret of these virtues lies in Allison's thirty years of experience in making precise products out of metal. And this reputation vital in aircraft engines will be equally evident in the performance of any Allison product in the future.



POWERED BY ALLISON

P-38—Lightning
P-39—Airacobra
P-40—Warhawk
A-36 and P-51—Mustang
P-63—Kingcobra

Allison has already furnished more than 85,000,000 H.P. for use in these planes.

LIQUID-COOLED AIRCRAFT ENGINES

Allison

DIVISION OF

Indianapolis, Indiana



KEEP AMERICA STRONG
BUY MORE WAR BONDS

Every Sunday Afternoon
GENERAL MOTORS SYMPHONY OF THE AIR—NBC Network

PAA Orders 204-Passenger Convair Two-Deck Airliners

Fleet of 15 Model 37 Six-Engine Planes To Go On Sea Runs

A FLEET of 15 huge 204-passenger land-based clippers has been ordered by Pan American World Airways from Consolidated Vultee Aircraft Corp. for use on its long distance, high traffic density routes. Eight of the new superliners, supported by three of a similar type in the six high traffic summer months, will carry

up of 204 passengers and 15,300 pounds of baggage, mail and express. The entire cabin will be pressurized for operation at an altitude of 30,000 feet.

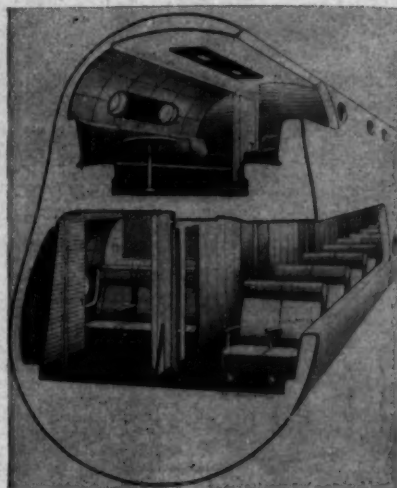
Power will be supplied by six engines of a new type now under development mounted on the trailing edge of the wing to take full advantage of laminar air flow, and driving pusher propellers. Cruising speed at range will vary between 310 and 342 miles per hour depending on altitude and power output.

Luxurious interior arrangements for the Model 37 have been created by Henry

Dreyfuss. The upper deck will be divided into two passenger sections separated by a lounge, rest rooms and pantry. The lower deck contains staterooms and reclining seats equipped with radios, individual reading lights and adjustable headrests. In one section there will be nine staterooms accommodating two persons each, and 12 berths. Separate quarters will be provided for the operating crew, and stewards, stewardesses and galley attendants will be carried in addition to the normal pilots, navigators and radio-men.

The Model 37 will be equipped with a thermal anti-icing system developed by Consolidated for the B-24 Liberator and PBV Catalina.

Although production cannot be started until wartime restrictions are lifted, a full scale mock-up of the plane has been completed at Fort Worth, and was in-



Double Bubble—The Consolidated Model 37 will have two decks running the length of its 182-ft. fuselage. The upper deck will have two passenger sections separated by a lounge, pantry and rest rooms. On the lower deck will be staterooms, reclining seats and a second lounge.



an estimated 442,764 passengers annually across the North Atlantic, operating at only 50 per cent capacity.

Three additional units, likewise operating at 50 per cent capacity, will transport 150,106 passengers a year between Honolulu and California, supplying daily round trip service between both Los Angeles and San Francisco and Hawaii, according to Pan American estimates. In the winter season the three units not required on the North Atlantic would be available for regular service over trunk line routes to Latin America. The 15th unit would be held in reserve as a standby, available for all three services.

The new airliner, known as Consolidated Model 37, is larger than any postwar transport yet proposed including the British Brabazon. It has a wing span of 230 feet, overall length of 182 feet and two decks throughout the length of the fuselage. Gross weight is 320,000 pounds, and over a 4200 mile range the new clipper will carry a 50,000 pound payload made



Pan American's Super Clipper—An artist's conception of the 204-passenger, 160-ton Model 37 (top) shows how the superclipper, 15 of which have been ordered by Pan American World Airways, will appear in flight. The land-based transport will carry a 50,000 lb. payload from New York to London in about 9 hours. The luxurious appointments of these postwar airliners are evident in this view (lower left) of one of the numerous rest rooms. This view (lower right) of one of the two lounges of the Model 37 shows the appointments and wood paneling used by Henry Dreyfuss industrial designer in creating the ultramodern interiors.

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Engine quitting, or on fire . . . a leaking tank or ruptured gas line . . . landing gear jammed and a tricky belly landing to be attempted. They all mean trouble, and they can mean a disastrous crash fire . . . that, in seconds, becomes a roaring inferno like this test fire at the Cardox proving grounds.

In such emergencies, a Cardox Airport Fire Truck is high on the list of sights welcomed by a pilot as he comes in for a landing. Called "Big Boy" at one field, "Snorting Bull" at another and "Gargantua" at a third, this truck has run up an impressive record at major airfields throughout the country in saving

lives and holding equipment damage to a minimum.

Cardox Airport Fire Trucks are engineered for one specific purpose . . . to extinguish crash fires in the shortest possible time so that rescue squads can get personnel off of the plane.

Backed by the tremendous extinguishing capacity of tons of zero-cold liquid carbon dioxide and hundreds of gallons of foam solution—teamed up as perhaps the most effective combination yet developed in fighting crash fires—a Cardox Airport Fire Truck literally overwhelms fires. So fast and effective is its performance that rescue of personnel is frequently possible in seconds after truck reaches scene of crash . . . even on fires involving

hundreds of gallons of running and spilled gasoline.

New Bulletin Gives Full Facts

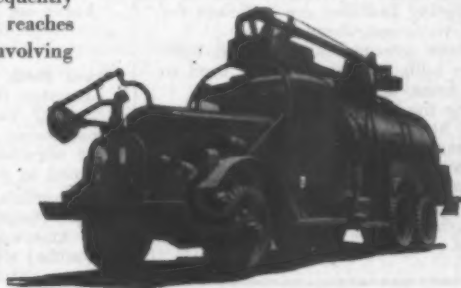
Airport authorities facing the problem of adequate fire protection for post-war operations should get these up-to-the-minute facts on Cardox Airport Fire Trucks NOW! Includes data on design, construction and operation; also typical performance records from the Cardox Case Book. Ask for Bulletin No. 2735

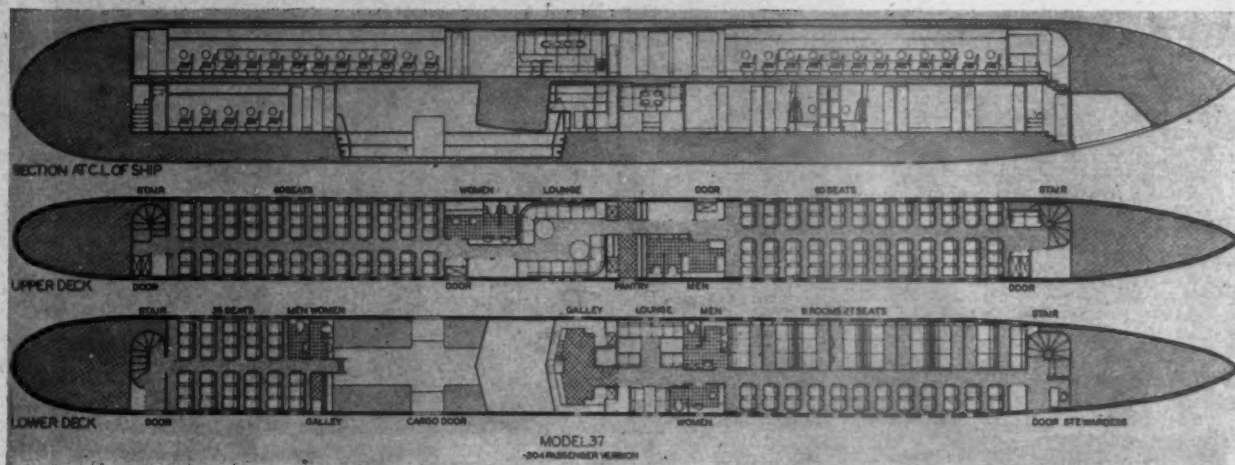
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spected last spring by members of the Aviation Writers Association. In addition, more than 90 per cent of the initial engineering has been completed, and it is reported that a military prototype already is under construction.

Lockheed Buys More Pacific Finance Stock

Pacific Finance Corporation's annual report shows that Lockheed Aircraft Corp. last year acquired 25,000 additional shares of the Corporation's common stock for \$400,000, or \$16 a share. As of Dec. 31, 1944, Lockheed owned 237,137 shares of common, or 94.85 percent of the 250,000 shares outstanding.

The company also revealed the formation of Olympic Insurance Co., with a paid-in capital of \$500,100. The insurance company Jan. 15 purchased the Pacific Finance Building in Los Angeles from the liquidator of International Reinsurance Corp. for \$1,355,000, less \$1,080,000 representing the lien of outstanding bonds. The liability of the outstanding bonds was not assumed but the property is held subject to the lien.

Notes on Model 37

There will be nearly 25 miles of wire in each plane.

The electrical system could supply an average town of 500 persons. It would take the average motorist 20 years to use the gasoline needed to fill the tanks.

The blueprints that will be used to build the plane would cover a 16-acre field.

Heating facilities are sufficient for a 40-room apartment house.

Three average homes could have been built with the lumber used in the mock-up.

The main landing gear tire is one foot higher than the ceiling in an average home.

Total power output will be equivalent to 353 average auto engines.

A family auto can be driven under the fuselage with ample clearance.

Rainbow-Hued Transports of Less Weight Seen as Result of New Magnesium Finish

RAINBOW-HUED transports one-third lighter in weight than present day aircraft of comparable size have been brought a step closer realization with the development of a new permanent protective finish for magnesium by N. H. Simpson, chief chemist, and P. R. Cutter, research chemist, of the Fort Worth Division of Consolidated Vultee Aircraft Corp. The

was placed in production at the Fort Worth Division with surprising ease and relatively low cost. He further revealed that C.V.A.C. No. 1, AC or DC, as the new process is known, is now being used to finish magnesium dorsal fins, wing trailing edges, instrument panels and many other parts on the B-32 Dominator. The AC or DC designates the type of electrical current used.

At present all alloys of magnesium used in the form of sheet, extruded or forged parts are being anodized simultaneously. Castings, however, are treated separately, and are generally processed at a slightly lower temperature.

New Horizons Opened

The horizons opened by the new finish are readily apparent. The high strength weight ratio, rigidity and dampening effect on vibration of magnesium have made its use a must in the skyliners of the future, but prior to the advent of the Convair process, the weight of the coatings required to protect it against corrosion and abrasion has more than offset these advantages and limited its usefulness. Magnesium alloy sheet, for example, has been used with success on experimental aircraft of stressed skin design, but because of the difficulty in protecting it from corrosion, has not been used in production military aircraft of this type.

Consolidated engineers already are predicting that as a result of the new finish magnesium will be used for household furniture, electric and gas cooling boxes and similar products in the postwar period. This in turn would suggest that its aircraft applications will not be limited to the actual construction of lighter weight airframes, but that it will play an important part in the development of new cabin appointments that will bring greater comfort and luxury to the postwar air traveler.

The developers and Convair, on behalf of the war effort, have given the process to the entire industry and to Allied nations.



Rainbow Protection — Paul Cutter and N. H.

Simpson, research chemist and chief chemist respectively of Consolidated Vultee's Fort Worth Division, inspect magnesium plates protected with their C.V.A.C. No. 1 anodic finish. Not only does the new finish inhibit corrosion and increase abrasion resistance, but it can be obtained in any color desired without weight penalty.

new finish not only has greatly superior corrosion resistance, one of the principal limiting factors in the present use of magnesium, but it provides 100 times better abrasion resistance, and can be obtained in any color.

Describing the new finish in a recent paper before the Magnesium Association of America, Simpson said that it was a modified alkaline anodic process similar to the anodizing of aluminum, and that it

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Aeronca Aircraft Corporation, Middletown, Ohio.

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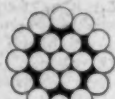
... for internal and external bracing. Streamline, square, round.

"Hi-Fatigue" Cables

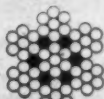
in 1 x 19, 7 x 7, and 7 x 19 constructions.

MACWHYTE COMPANY

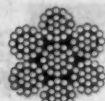
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Manufacturers of MACWHYTE "Hi-Fatigue" Aircraft Cables—"Safe-Lock" Cable Terminals—Aircraft Tie-Rods—Braided Wire Rope Slings—and Wire Rope for all requirements.



1 x 19



7 x 7



7 x 19



MACWHYTE
Hi-Fatigue
AIRCRAFT CABLES
AND ASSEMBLIES



Troxell



Ward



Horner



Taylor

The engineering laboratory at The Glenn L. Martin Co., Baltimore, has been reorganized to place increased emphasis on aircraft research and development. **Roger Ward**, until recently foreign field service supervisor in England, and before that assistant to the vice-president manufacturing, has been named chief of laboratories, and **Willard Troxell**, formerly materials control engineer, has been appointed his assistant with specific responsibility for technical research and development. Under the integration the structural plastics laboratory and materials control, formerly organized as separate groups, have already been transferred to laboratory jurisdiction with other departments to follow.

H. M. Horner, president, United Aircraft Corp., has been elected chairman, and **J. Carlton Ward, Jr.**, president Fairchild Engine & Airplane Co., vice-chairman of a newly formed Surplus Advisory Committee for the Eastern Region of the Aircraft Manufacturers Council of the Aeronautical Chamber of Commerce.

R. H. Wendt, vice-president in charge of engineering for Taylorcraft Aviation Corp., has been elected a member of the National Aircraft Standards Committee of the Aeronautical Chamber of Commerce.

Walter K. Balch, former director of technical training and maintenance for the Ryan School of Aeronautics, has been appointed plane service manager and head of the flight service organization of Ryan Aeronautical Co., San Diego.

Robert H. Renner, formerly budget

officer and assistant to the vice-president of Bell Aircraft Corp., has been named divisional comptroller of Aireon Manufacturing Corp., Kansas City, Kan.

H. Ward Groom, previously superintendent of receiving inspection, has been named assistant chief inspector of the Allison Division of General Motors Corp. He is succeeded by **Carl V. Garrett**, with General Motors for 18 years. **Raymond A. Wise** has been named superintendent of jet engine inspection, and **William G. Shepherd** superintendent of inspection on reciprocating engine parts.

J. Fred Dunn, formerly assistant comptroller, has been elected comptroller of Ryan Aeronautical Co., San Diego, succeeding **James C. Noakes**, who has resigned to organize his own accounting and tax consultant firm. **William Hoffman** has been appointed assistant to the comptroller, and **John B. Hill** has been elected assistant secretary.

Donald S. Sprague, since 1936 manager of the customer service department of all Douglas plants, and of the Douglas foreign field service division, has joined Turco Products, Inc., Los Angeles, as head of its aviation department.

Irving H. Taylor, assistant to the president and eastern representative of Douglas Aircraft Co., has been elected chairman of the Export Committee of the Aeronautical Chamber of Commerce. **Joseph M. Barr**, manager, export department, Pratt & Whitney Division, United Aircraft Corp., was named vice-chairman.



Renner



Wendt



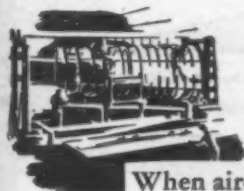
Sprague



Balch

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MANUFACTURERS OF COMPLETE AIRCRAFT ASSEMBLIES

Shooting Star

(Continued from page 21)

through a compressor into a combustion chamber where it is heated and expanded by a burning fuel similar to ordinary kerosene. The hot gas then passes through a turbine and out through a



Clarence L. Johnson

huge nozzle in the aft fuselage to propel the plane.

The Army Air Forces report that the P-80 is remarkably simple to build, service, repair and fly. Typical of the ease of maintenance is the fact that the engine can be replaced completely within 15 minutes as compared to the eight or nine hours required for an engine change on a standard fighter.

The development of the P-80 is one of the outstanding wartime achievements of the aviation industry. In July, 1943, the Air Technical Service Command presented Lockheed with a British jet engine and requested that a suitable airframe be built around it. Clarence L. Johnson, Lockheed's chief research engineer, assisted by Army engineers, set to work on the plans, and in 143 days the first airplane had been designed, constructed and flown. Subsequently the G-E engine was adopted in place of the British model.

6286 Planes Produced In Month But Output Is 3% Below Schedule

The War Production Board has announced that 6286 planes were accepted during February, but aircraft production was nearly three percent below schedule. It was the fourth consecutive month in which output failed to meet the goals set for it.

The February production totaled 71,300,000 pounds in airframe weight, exclusive of spares. The output included 2263 bombers, 2873 fighters and naval reconnaissance, 604 transports, 207 trainers and 339 communications and special purpose planes.

The daily rate of production was nine percent ahead of that of January. The over-all schedule for March calls for 6937 planes, compared with the 6454 called for in February.

Thrust Power of Lockheed P-80 Described by Company Engineer

By HALL HIBBARD

(Chief Engineer, Lockheed Aircraft Corp.)

IN THE YEARS following the last war the airplane, automobile, radio and motion picture became commonly accepted parts of our daily life. There will be new facets to our lives in the period following this war and one of the most important developments, as far as transportation is concerned, will be the introduction of jet propelled aircraft.

Hitherto unheard of speeds will be common in large jet propelled transports 10 or maybe 15 years from now and every capital on the globe will find itself within one day's flying time of every other capital.

Any development that promises such radical change in our concepts of space and time is deserving of thorough study.

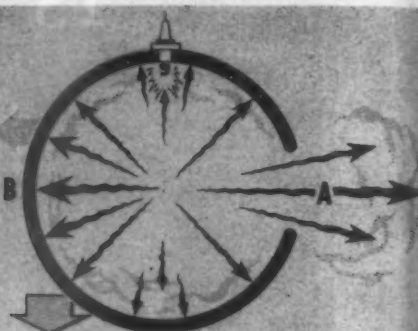
tion concerning the principle of jet propulsion is the idea that forward thrust is obtained by the rush of hot gases from the jet pushing against a cushion of air. This is not true.

I think the simplest way to visualize the theory of jet propulsion is this: Let's suppose we have a metal sphere filled with common illuminating gas. By means of a sparkplug we ignite the gas. The result is an explosion with tremendous pressure exerted equally against all points on the sphere. But because the pressure is equal at all points on the sphere, the sphere itself will not move as a result of the explosion. The pressure on one side of the sphere is cancelled out by opposite pressure on the other side.

Now let's make a hole in the sphere and repeat the same performance. There will be pressure at all points on the



EXPLOSION CREATES EQUAL
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SPHERE'S INNER SURFACE.



NO PRESSURE CREATED AT A.
SPHERE MOVES TOWARD UN-
CANCELLED PRESSURE AT B.



EXPANDING GASES IN COMBUSTION CHAMBER FLOW
THROUGH TURBINE TO EXHAUST. PRESSURES ON ENGINE
WALLS CANCEL. EXHAUST PRESSURE IS ZERO — LEAVING
POSITIVE FORWARD PRESSURE PROVIDING THRUST.

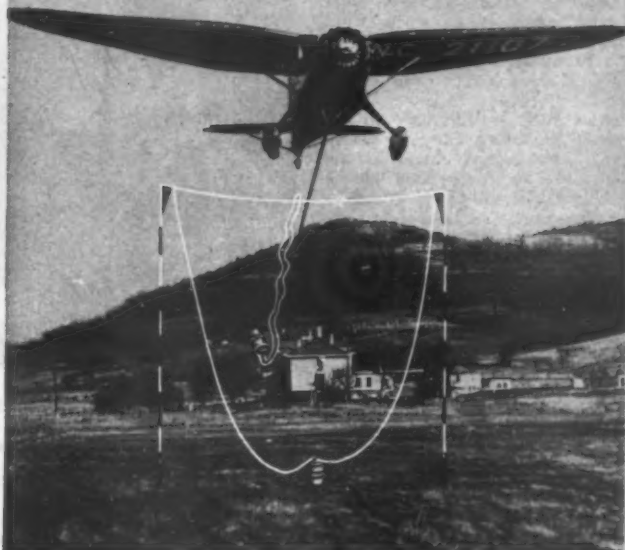
The following material is intended to supply the answers to some commonly asked questions on the subject of jet propulsion and to straighten out a few general misconceptions.

Perhaps the most common misconcep-

tion concerning the principle of jet propulsion is the idea that forward thrust is obtained by the rush of hot gases from the jet pushing against a cushion of air. This is not true.

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President Bazley (right) checks the loading at terminal of an air mail pick-up plane.



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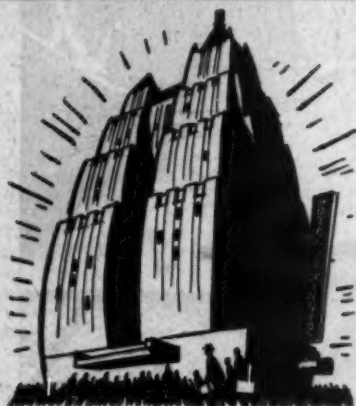
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the hole area. Here there is positive pressure on the one side of the sphere where there is no opening. On the other side, where the gases are able to escape, the pressure is zero. The result is obvious, the sphere will move in the direction of the positive pressure—away from the opening.

You see, this is simply a matter of internal pressures in the sphere. Nothing outside of the sphere has any bearing on what happens to the sphere. It works as well in a vacuum as in the earth's atmosphere. This is the principle of jet propulsion.

A jet engine, such as that used in the Lockheed P-80 Shooting Star, is really very simple. Streamlined ducts in the leading edges of the wings lead air to the engine where a high-speed fan draws the air into the engine at high compression. From the compressor the air passes into a combustion chamber, where it is mixed with fuel injected at high pressure. A continuous explosion occurs in this combustion chamber heating the gases to a very high temperature and causing them to expand violently.

Can Only Move Back

Now we have a condition similar to that created in the sphere with the opening on one side. The exploded mixture under great pressure can only move in one direction, toward the back of the airplane. Thus we have zero pressure towards the rear, equal pressures cancelled out on the sides and a positive forward pressure at the front of the combustion chamber. No valves are needed as the new air being piled in by the fan prevents air escaping toward the front.

You will remember from your high school physics the formula for determining force ($F=MA$ or Force equals Mass times Acceleration). This law applies to jet propulsion. " F " (the force driving the airplane forward) is equal to " M " (the mass of the expanding gas) times " A " (the acceleration given the gas as it expands and passes to the rear). In jet engines we speak of thrust rather than horsepower and the power of an engine is expressed in pounds of thrust.

Once the engine is started no ignition system is necessary. A small metal plug protruding into the combustion chamber heats red hot in the first few seconds of operation. This serves to ignite the mixture of air and fuel as it is introduced. For the initial start sparkplugs are used.

From the combustion chamber the hot gases pass rearward through a gas turbine. Here is the heart of your jet engine. This turbine turns very rapidly under the impact of the rapidly expanding heated gases. A shaft connects the turbine to the compressor fan in front of the engine supplying the power necessary for the intake and compression of the air. In effect you are lifting yourself by your own boot-straps.

The real problem in developing jet engines lay in this turbine. Alloys had to be developed for the turbine blades that could stand the terrific temperatures and still rotate at velocities several times greater than airplane propellers. After passing through the turbine, the gases are led to open air at the tail of the ship through a large pipe.

The basic simplicity of jet engines promises rapid production for military purposes now that workable engines have been developed. Many of the familiar problems, cooling, complex electrical sys-



Gyro Calibrator—This bench oscillator was devised in the TWA instrument shops at Kansas City to use in calibration of directional gyros without tying up the Gyro Pilot Scorsby which had become a bottleneck. The new machine rotates the gyro about all three axes of motion encountered in flight at a frequency of six cycles per minute.

tems and the problems inherent in any gear driven mechanism like a propeller, are non-existent with jet propelled aircraft. For instance, critical temperatures are encountered in jet engines only at the turbine fans and the turbine bearing. It has been necessary to develop special alloys for these parts to withstand the heat developed.

Kerosene Preferable

For fuel, the Shooting Star's General Electric engine uses kerosene, which is preferable to gasoline because it provides somewhat more BTU per pound and per gallon. Thus the dangers of handling high octane gas are eliminated. Absence of a propeller removes another hazard, although the hot gases issuing from the tail at about 1200 degrees could be dangerous. However, these gases cool rapidly and 100 feet behind the airplane only a strong blast would be felt. The Shooting Star's engine weighs approximately one half what a conventional engine developing comparable thrust could be expected—an advantage from the weight standpoint.

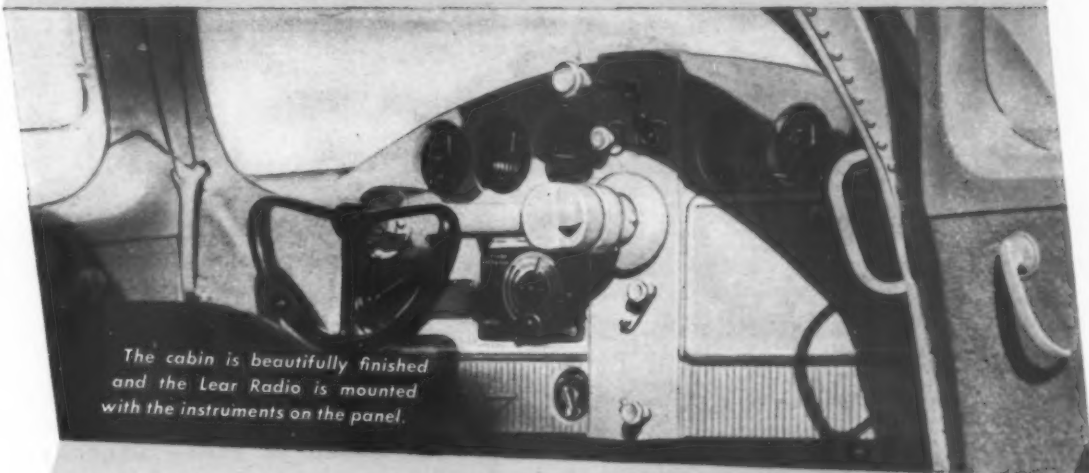
It is hard to forecast the limits of future developments in this field. In my opinion jet engines can be used as successfully by large planes as by small. I can foresee tremendous increases in transport speeds in a matter of a very few years. Jet engines remove the barriers formerly limiting the top speed of aircraft, and we should see airplane speeds passing through the compressibility range (approximately 725-775 miles per hour at sea level) in a relatively short time.

The basic problems have been pretty well worked out. Now we are entering a period of development that should be at least as spectacular as the development period of the airplane in the twenty years after the first world war.



Republic Aviation Corporation's new postwar amphibian flies with Lear Radio. This experimental model is Lear-equipped and all tests have been flown with it.

Looking Ahead with Lear



The cabin is beautifully finished and the Lear Radio is mounted with the instruments on the panel.

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Since 1930, Lear has been a specialist in fine aircraft radio instruments and direction-finding

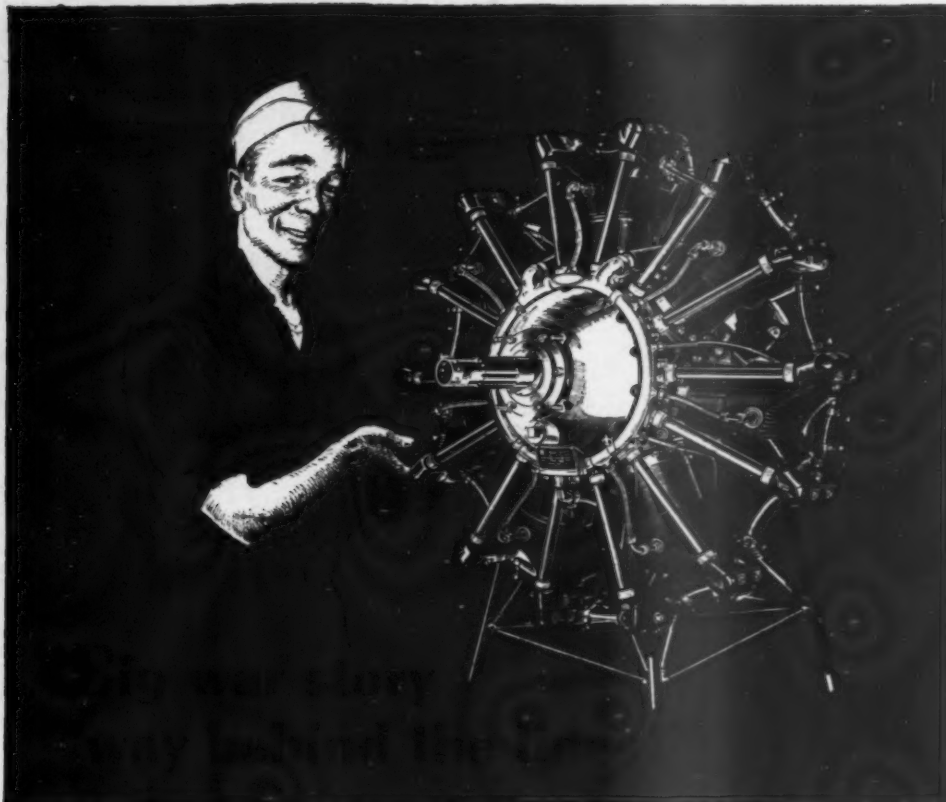
equipment. They have won a reputation for being light, keenly sensitive and unusually dependable.

Of course, all Lear production now goes only where Uncle Sam says. But aircraft operators can look ahead to the days when Lear aircraft equipment, improved and developed by its work in war, will again be available.

Radio Division: Grand Rapids 2, Michigan
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1010 N. Highland Ave., Los Angeles 38, Calif.

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A pre-war engine, developed during the Depression years, the Jacobs had proved itself a simple, rugged engine that stood up for long periods in all kinds of work and weather, with little maintenance. No government money went into its development. Ready for production, thousands were ordered.

FOUR years ago, the Jacobs was rated by the Army as good for 350 hours of flight time between major overhauls—long service shift for an engine handled by student pilots, taking more take-offs and more time at full throttle than engines used in any other type of flying.

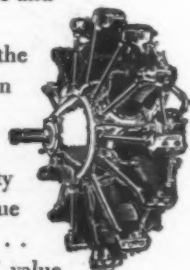
As the flight hours piled up, it was found that the Jacobs was good for more than 350

hours; and the service period was extended again and again. Today, the service period of the Jacobs is as high as 1,200 hours—equivalent to 180,000 air miles of flight, not counting taxiing, and ground time.

Because it delivered more than three times the original specified service hours, the Jacobs not only speeded up training schedules, but also saved the AAF and the taxpayers millions of man-hours in shop time and maintenance.

Built to work, built to last . . . the Jacobs will mean more in peace than in war—when safety and low costs are essential to commercial flying.

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The mobile Mallory Rectostarter at left provides ample DC power to start the engine of this P-47 "Thunderbolt". The Rectostarter may also be used for battery charging, testing and repairing aircraft, electrical and radio equipment wherever airports are wired for this service.

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Mobile, rugged, easy to operate, unaffected by variations in the weather, the Rectostarter is built to give years of trouble-free service. They are built to operate from any 208 and 230 or 460 volt 3 phase 60 cycle AC source to furnish an economical, continuous flow of DC power. Rectifying action is provided by Mallory magnesium-copper sulphide rectifiers. With no moving parts, these dry disc rectifiers assure silent operation and long life.

Republic Aviation Corporation—like other air-

craft manufacturers and the airlines—finds many uses for Mallory Rectostarters. Starting engines . . . providing power for radio, instruments, lights and other equipment in the plane while on the ground . . . testing aircraft engines and electrical equipment during manufacturing operations . . . these jobs are commonplace for the Rectostarter. All this and battery charging, too, for it can be used to taper charge 12 and 24 volt aircraft batteries without removing them from the plane . . . wherever the airplane may be on airports wired for this service.

Rectostarters are available in portable or stationary units, with one or more DC outlets. See your nearest Mallory Distributor for details. Or write us today.

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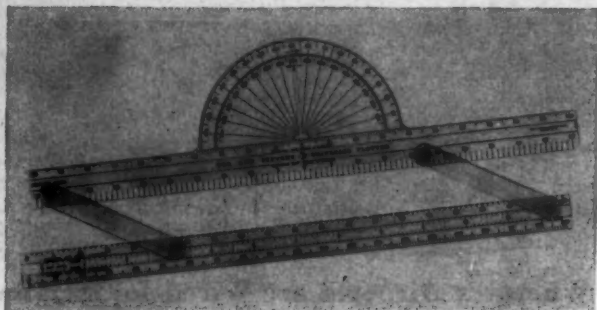
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Tells of Jobs at Japs—Back from a 25,000-mile tour of the Pacific including bases from which B-29s are bombing Japan, P. B. Taylor, center, vice president and acting general manager of Wright Aeronautical Corp., points out to Maj. R. T. Nimmons, left, and R. E. Johnson of the Wright company the route he traveled.

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Constellation on Fast Hop

Although making a performance test flight and not trying for a record, the Lockheed Constellation, which will be operated over the Africa-Orient run by Pan American World Airways for the Air Transport Command, flew the 2500-mile route from Burbank, Cal., to Miami via Tallahassee non-stop in eight hours and 43 minutes.

\$1,000,000 Bonfire

Planes which were no longer needed because of closing of Alberta flying schools, having been declared no longer useful as military aircraft and not adaptable to civilian uses, were burned recently at a repair depot, Calgary, in what one newspaper termed a \$1,000,000 bonfire, according to the Canadian Press. They were mostly Oxford trainers and Avro-Anson bombers.

Jato on 'Flying Hospitals'

The PB2Y-3 Coronado has been modified into a rescue and hospital ship with the addition of jet-assist take-off units and new 1,200 hp. Pratt & Whitney engines. The new version, which is now coming off the production line, is designated PB2Y-5H by the Navy.

Ball Wins Bronze Star

Pfc. Robert S. Ball, aviation editor of *The Detroit News*, now on military leave, has been awarded the Bronze Star for gallantry on the western front by volunteering to carry a communication line through heavy enemy fire and in the face of intensive Nazi sniping. By his action a portion of his outfit, cut off from the main body, was rescued from a superior enemy force.

DPC Authorizations

PRATT & WHITNEY AIRCRAFT CORP. OF MISSOURI for additional plant facilities at Kansas City at a cost of approximately \$4,300,000; overall commitment approximately \$85,000,000. The Kansas City plant is manufacturing P&W R-2800-C engines.

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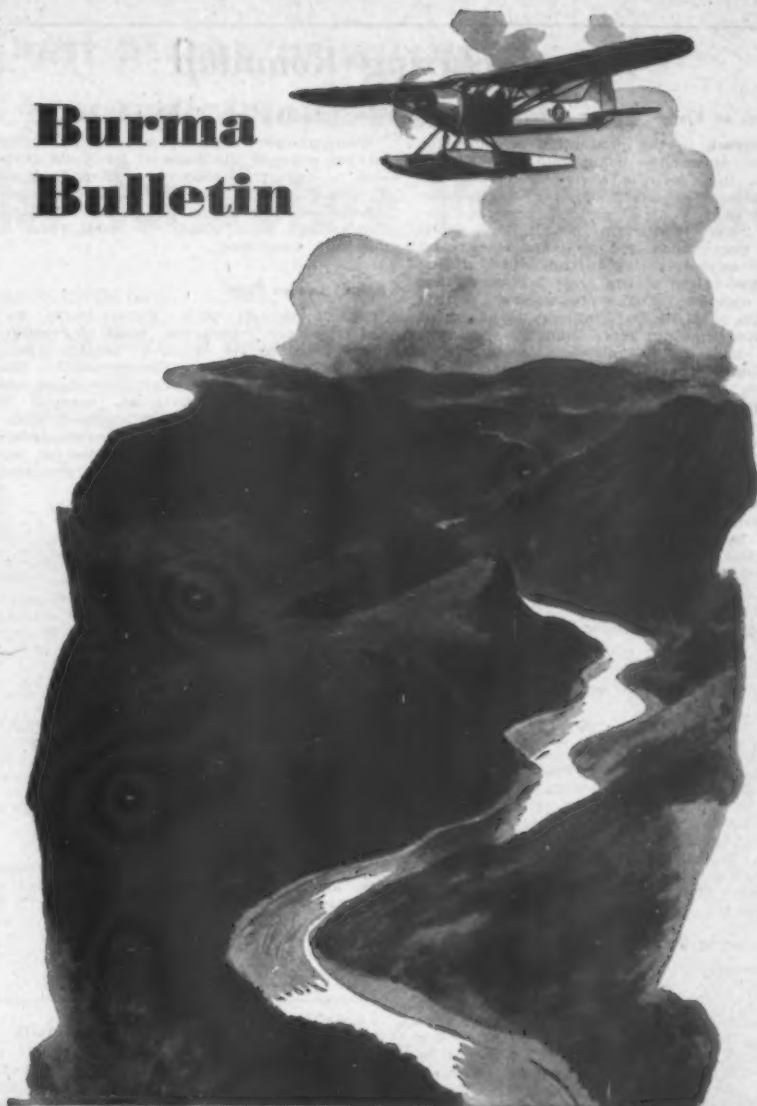
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IN Burma, too, the ubiquitous flying jeep has earned its service stripes . . . doing the jobs that only a jeep could do in a wilderness of steaming jungles, towering ridges and mountain gorges. Scouting and photographing ahead . . . bringing up ammunition—food—mail—freight . . . ferrying reinforcements . . . spotting for the gunners . . . speeding the evacuation of sick and wounded . . . performing miracle rescues . . . pacing the push at critical advance points where a "landing field" may be an hour-old strip—or a river sand bar.

Now a strange jeep makes its appearance in the Burma theatre. Strange only because it is a float plane flying overland . . . hundreds of miles from blue water. But this jeep seaplane is *amphibious*. Its Edo floats are fitted with retractable wheel gear! The same pin-point landing strips are accessible to the pilot of this jeep. But so also are countless additional "ports" on the rivers that wind tortuously through the Burma hell. And that gives the versatile amphib an important strategic advantage on many a mission when success hangs on a slim margin of miles or minutes.

Blazing new trails—landing and taking off from jungle clearing and muddy stream—the Edo-equipped amphibious jeep is helping to win new laurels for the hardy pilots who fly the never-ending trek that is Burma.

Burma Bulletin



EVACUATING SICK AND WOUNDED WITH A STINSON L-1A EQUIPPED WITH EDO AMPHIBIOUS FLOATS

EDO Amphibious FLOAT GEAR

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Manufacturing Roundup

Cutback at Kinner

A cutback in the production schedule for cylinder assemblies being built by Kinner Motors, Inc., for the Army Air Forces was announced at a recent meeting of representatives of the Air Technical Service Command, War Production Board, War Manpower Commission, Kinner management and Kinner employees. Production will continue until two-thirds of the present contract has been completed. The terminated portion amounts to \$3,649,300. Company management estimated that not more than 100 employees would have to be released. According to Brig. Gen. Donald F. Stace, commanding the Western District, ATSC, another contract of a similar nature is now being negotiated.

New Douglas Contracts

New contracts placed with Douglas Aircraft Co. since Feb. 5 call for nearly 2,000 warplanes at a cost of around \$320,000,000 on the basis of unit costs for previous contracts. Types included are B-17 and A-26 bombers and C-54 transports. The Douglas schedule for the B-17 has been boosted 50 percent since Jan. 1.

Luscombe Appoints Lupton

The Luscombe Airplane Corp., Tranton, N. J., has appointed John Mather Lupton Co., New York, as its advertising agency.

Solar Plant Ready May 15

Ground has been broken for a new factory addition to the Solar Aircraft Co. facilities in San Diego. The new plant which will be used to manufacture B-29 exhaust systems and stainless steel parts for jet engines will provide 65,000 additional square feet of floor space. It will cost \$150,000, and will contain \$750,000 worth of new equipment and machinery. The contract calls for completion by May 15.

Encouraging Response

Response to the letter sent out by Secretary of the Navy Forrestal, requesting the Navy's 18,000 prime contractors to agree not to assert any claims for patent infringement arising out of utilization of inventions during the war for governmental purposes has been very encouraging, the Navy Dept. reports, but many more replies still are needed to achieve the substantial unanimity on which the agreement was predicated.

Lawrance Adds New Contracts

Between \$6,000,000 and \$7,000,000 in new contracts for building critical parts for Grumman Aircraft Engineering Corp., Radio Corp. of America, and Mergenthaler Co. have been taken on by Lawrance Aeronautical Corp.

Aireon Increases Capital

An interim report issued by Aireon Manufacturing Corp. shows that working capital has been increased from \$961,392 on April 30, 1944 to \$1,388,016 on Oct. 31, 1944. The provision for renegotiation refunds was reduced from \$2,961,000 to \$1,540,000. As a result of renegotiation for the previous fiscal year, it was established that excess profits of \$439,725 were realized.

Labor Grades Approved

The San Francisco Regional War Labor Board has refused to approve rate ranges for China Aircraft Corp. but did approve A, B and C labor grades in the same type of work. Industry and labor members of the Board consider the decisions inconsistent. The former favor both rate ranges and A, B, C classifications, while the latter oppose both. Public members favored one and opposed the other.

Westinghouse Name Change

Westinghouse Electric & Manufacturing Co. has changed the name of its Radio Division to Industrial Electronics Division since its activities now encompass radar and other electronics applications not related to communications with which the word radio is normally associated.

Kellett Leases Plant

Kellett Aircraft Corp., Upper Darby, Pa., has leased the Primos, Pa., plant of Pennsylvania Lawn Mower Works to permit expansion and consolidation of its operations. The Primos unit will house production shops and the experimental department, engaged in helicopter work. The Kellett engineering department will be transferred to new quarters in Springfield, Pa. to place helicopter engineering and design operations in proximity to the Primos manufacturing unit.

Canadian Vickers Now Canadair

Canadian Vickers, Ltd. has changed its name to Canadair, Ltd., P. O. Box 6087, Montreal. The new company succeeded to the operations previously carried on by Canadian Vickers Limited Aircraft Division as of Nov. 11, 1944.

B-29 Nose Production Up

Production of noses for the B-29 Superfortresses is ahead of schedule, the Libby-Owens-Ford Glass Co. reveals. It takes 737 parts and almost as many individual operations to build these noses.

Louisville to Modify B-17s

An undisclosed number of Flying Fortresses will be modified at the Louisville plant of Curtiss-Wright Corp. The new contract is in addition to continued production of Commandos and completion of modification of a group of Superfortresses.

Menasco Nets 1/4 Million

Sales of \$3,156,532.83 and net income, after provision for taxes and renegotiation, of \$239,154.63, or 2.93%, have been reported by the Menasco Manufacturing Company, Burbank, for the six month period ending December 31, 1944.

The interim statement, based on unaudited figures, was sent to Menasco stockholders with the notice of the Company's annual meeting of stockholders, March 27. Menasco's chief wartime product is aircraft landing gear. In normal times, it is an engine company.

Provision for \$1,360,880 federal income and excess profits taxes and renegotiation was made in arriving at the six-months net earning figure of \$239,154.63, or 26c per share. Working capital since June 30, 1944 increased \$215,943 to \$1,297,453.

AIREON MANUFACTURING CORP. has filed a registration statement covering the issuance and sale of 150,000 shares of its 60-cent cumulative convertible preferred stock, par value \$10, with the Securities and Exchange Commission. The shares will be publicly offered at \$11.375 a share with an underwriting commission of \$1.375 a share by a group of underwriters headed by Reynolds & Co. Net proceeds will be added to the company's general funds.

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Is Your Promise for Future Performance

For many years, Wilcox installations have performed distinguished service in the flight control operations of the major airlines of the nation and at broadcasting stations. During war years, new manufacturing techniques and new products have been developed to meet military needs.

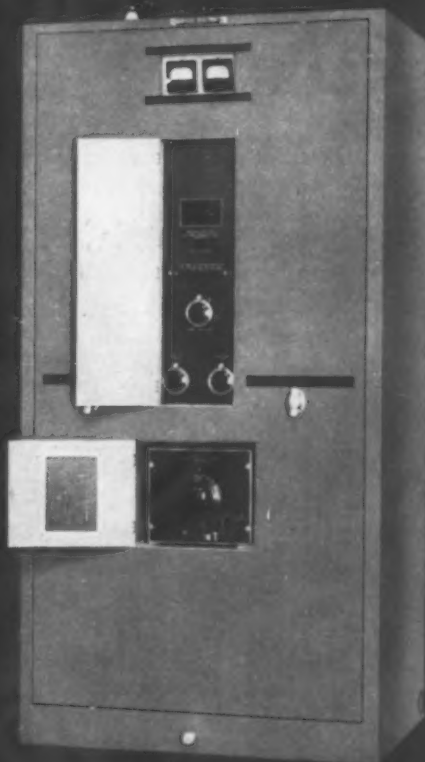
Now, while Uncle Sam's orders have first priority... Wilcox Radio communications equipment is becoming available again. An expanded and improved line is being developed and completed to continue the leadership long associated with the Wilcox trademark in the field of radio equipment.



Inside View



96-200C powered by 36A Rectifier and 50A Modulator



A 2500 WATT LOW FREQUENCY TRANSMITTER

96-200C Transmitter designed for navigation aid, point to point, facsimile, radio teletype, or telephone-telegraph radio unit.

SPECIFICATIONS:

Power Output, 2500 watts.
Frequency Range, 125 KC to 525 KC.
Oscillator, crystal and/or master oscillator.
Modulator, 50A High-Level, Class B.

Power, 36A Rectifier.
Construction, Treated for tropic fungus or Arctic Cold.
May be used with 96C 2-20 MC transmitter.



WILCOX ELECTRIC COMPANY, INC.

Manufacturers of Radio Equipment

FOURTEENTH AND CHESTNUT

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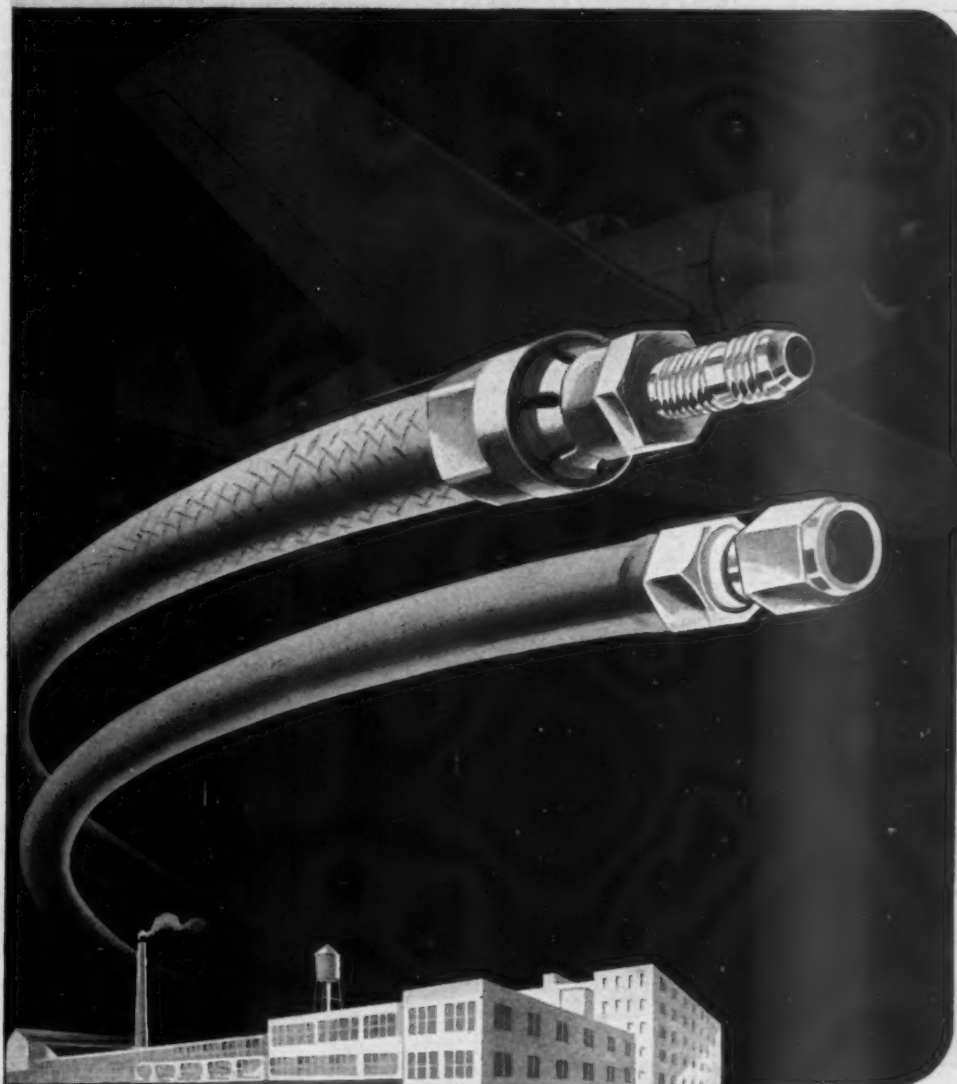
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Because Weatherhead quick-attachable (Q-A) hose fittings can be easily installed as either original equipment or replacement work, service-men and mechanics have stated overwhelming preference for them. They are available in two types for low pressure or for medium and medium-high pressure lines. Write or phone any Weatherhead branch office for our new Aviation Catalog. It's free!

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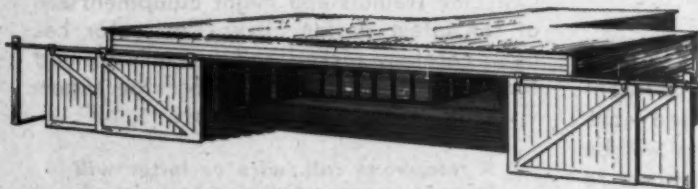


General Tires

Designed to meet the needs of any operator, these famous aircraft tires are now available for aircraft of all types.

Fahlin Propellers

Built for engines ranging from 40 HP to 250 HP. Fahlins meet CAA specifications and carry approved type certificates.



Otto Portable "T" Hangars

Here for the first time is a low cost, practical, portable "T" hangar for the light plane owner or fixed base operator. Large enough for any standard light aircraft, these hangars are designed so that they may be interlocked to form a hangar line of any desired capacity. Price, complete including doors, \$575.00 f.o.b. factory. Write today for full information.

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AVCO Backlog 2 Billion

The aggregate backlog of orders of the Aviation Corporation and its associated companies at the end of the fiscal year on November 30, 1944, was \$2,028,000,000.

For the fiscal year, net sales of the corporation's own manufacturing units, namely, the Lycoming, Republic Aircraft Products, Northern Aircraft Products, and Spencer Heater divisions, and its wholly-owned subsidiary, American Propeller Corporation, amounted to \$61,259,997.

Net income of the Corporation and its wholly-owned subsidiary, American Propeller Corporation, for 1944, amounted to \$3,106,179, equal to 54 cents per capital share, after all charges including Federal taxes and a reduction of \$4,300,000 in net sales for estimated contract renegotiation readjustment. This net income is exclusive of the Corporation's equity in undistributed earnings of associated companies amounting to 60 cents per share.

Net income for 1944, as shown in the report, is also after provision of \$600,000 for postwar readjustment, which brings such reserves, first created by the management in 1942 as a protective cushion, to a total of \$2,000,000.

Net income for 1943, as adjusted after settlement of final renegotiation proceedings with the Army Price Adjustment Board, was \$2,670,192, or 46 cents per share. Terms of the settlement reduced net income of \$3,519,437, as reported in the 1943 annual report, by \$849,245.

On January 31, 1945, the estimated value of The Aviation Corporation's investments and other net assets—based on market quotations where available and otherwise on book values—amounted to \$46,585,000, equivalent to \$8.04 per share of the Corporation's capital stock, compared with \$6.26 per share the year before.

Ryan Revenues Up 58 Percent

Gross revenues of the Ryan Aeronautical Co. and subsidiaries increased 58 percent, totalling \$40,085,433, for the 12 months ended October 31, 1944, compared with the \$25,357,542 for the 1943 fiscal year. T. Claude Ryan, president reveals in the annual report to stockholders.

Although the percentage of profits on gross revenue declined, a greatly increased volume made it possible to show per share earnings of \$1.60, against \$1.30 for the preceding period. Total net profit, including postwar refunds held by the government, was \$703,346, compared with \$597,313 for the year ended October 31, 1943.

By the end of the fiscal year, Ryan said, production of wings and major airplane assemblies for other manufacturers was almost entirely eliminated to permit the company to add the facilities and working force thus released to the expanded production program of the new Ryan fighting plane developed for the Navy.

At the end of the fiscal year, the undelivered amount of contracts for the new Ryan fighting plane was approximately \$58,000,000 which, together with contracts for exhaust manifolds and allied products, comprised an all-time high backlog in excess of \$73,000,000.



Can you blame us?

Don't get us wrong. As the designers of all gliders operated by the Army Air Forces—and as the builder of many of them—we appreciate the importance of the job they are doing in this war . . . the importance of the role they may play in commercial aviation in the days to come.

But, we don't like combat gliders! Take a look at the youngster above and perhaps you'll understand. He's the pilot of a WACO troop carrying glider and, if you've followed the war and the glider-led invasions, you can readily see that his is a job that makes a man old before his time.

That's why we make this statement. We don't want to see that young fellow—and thousands like him—get old too young. We want to get him out of that glider and into a new, peacetime WACO plane . . . in which all his landings can be happy landings. Can you blame us? **THE WACO AIRCRAFT COMPANY, 23 Peters Avenue, Troy, Ohio, U. S. A.**

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(Courtesy Merrill Lynch, Pierce, Fenner and Beane)

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All American Aviation	97%	101%
American Airlines Pfd.	called Jan. 15, 1945 @ 108	
American Export Airlines	34½%	35½%
Braniff	19%	sale
Chgo. & So. Common	14½%	15½%
Chgo. & So. wts.	7	8
Continental Airlines	13	14½%
Delta Air	24	25
Inland Airways	3½%	4½%
Mid-Continent	8½%	9½%
National Airlines	17½%	17½%
Northeast Airlines	12½%	.....

MANUFACTURERS:

Aeronca	4½%	4½%
Air Assoc.	13½%	13½%
Aircraft & Diesel	1½%	2½%
Aireon Mfg.	7	sale
Airplane & Marine	5½%	6½%
Airplane Mfg. & Supply	3½%	3½%
Central Airports	¾%	.....
Columbia Aircraft .....	.....	.....
Continental Aviation	4½%	5
Delaware Aircraft Pfd. ....	.....	.....
General Aviation Equip.	1½%	1½%
Globe Aircraft .....	.....	.....
Harlow Aircraft	¼%	¼%
Harvill Corp. Common	2½%	2½%
Interstate Aircraft & Eng.	13½%	14½%
Jacobs Aircraft	4½%	sale
Kellett Aircraft	1½%	1½%
Kinner Motors	1.35	1.80
Liberty Aircraft	14½%	15½%
Luscombe	1½%	2
Menasco Mfg.	1½%	1½%
Northrop Aircraft	7½%	sale
Piper Aircraft Common	3½%	4½%
Piper Aircraft Pfd. ....	.....	.....
Pitts. Aviation Ind. ....	.....	.....
Rohr Aircraft	10½%	11½%
Std. Aircraft Products .....	.....	.62
Taylorcraft Common	2½%	2½%
Taylorcraft Pfd.	7½%	8½%
Tinnam .....	.65	.80
Utd. Aircraft Prods. Pfd.	18½%	20

Feb. 24, 1945	March 2, 1945
Bid	Asked
10	10½%
34	36
19	sale
15½%	16
7½%	8½%
14	15
25	26
4	4½%
9½%	9½%
17½%	sale
12½%	.....
5	5½%
13½%	13½%
2	2½%
5½%	6½%
5½%	6½%
3½%	3½%
¾%	.....
1½%	1
4½%	5½%
no record	.....
1½%	1½%
1½%	1½%
¾%	¾%
2½%	2½%
13½%	13½%
4½%	sale
1½%	1½%
1.40	1.8
14½%	15½%
1½%	1½%
1.50	1.8
8½%	sale
3½%	4½%
37
final liq. 76c available at Farmer's Nat'l Bk.
10½%	10½%
.62	¾%
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8	8½%
.80	.8
19½%	20½%

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Tempest Speed 435 MPH

The Hawker Tempest V has a 435 miles per hour top speed and a tactical radius of about 500 miles without auxiliary tanks, the British Ministry of Aircraft Production has announced. The fighter, which has a gross weight of 11,500 pounds, is powered by a Napier Sabre IIB 24-cylinder H type liquid-cooled, sleeve-valve engine of 2400 hp. It has a ceiling of 36,000 feet.